

Attachment 141

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON**

FEDERAL TRADE COMMISSION,
Plaintiff,

v.

AMAZON.COM, INC., a corporation,
Defendant.

Case No. 2:23-cv-0932

**EXPERT REBUTTAL REPORT OF DONNA L. HOFFMAN, PH.D.
March 26, 2025**

CONFIDENTIAL

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I. Qualifications, Background, and Assignment

1. I submitted an opening report on February 24, 2025 (“Hoffman Opening Report”), which provides details on my qualifications. A complete list of my professional qualifications, publications, affiliations, and expert witness testimony are described in my curriculum vitae, which is attached to this report as **Appendix A**.

2. In the Hoffman Opening Report I was asked to analyze Amazon Prime’s enrollment and cancellation processes discussed in the Amended Complaint (as well as that of popular paid digital membership/subscription programs); assess the FTC’s allegations about UI design elements at issue within the context of online consumer experience; review documents discussing Amazon’s 2018 Project Lucent and 2020 Universal Prime Decision Page (“UPDP”) clarity testing experiments (“Amazon’s Clarity Improvement Initiatives”); and assess methodological limitations of those studies.¹ Based on my analysis, I concluded that: (i) an analysis of the online consumer experience must take into consideration consumers’ goals, past experiences, and expectations; (ii) the definitions of the alleged “dark pattern” design elements are vague and lack scholarly consensus, which might cause commonly used legitimate marketing practices to be misidentified as “dark patterns;” (iii) the FTC’s claims regarding the at-issue UI design elements in Amazon Prime’s enrollment and cancellation processes show a lack of consideration for standard marketing practices and are inconsistent with the basic tenets of online consumer behavior; (iv) the at-issue UI design elements used by Amazon are commonly used online and are likely familiar to many online consumers; and (v) Amazon’s Clarity Improvement Initiatives relating to the UPDP page had methodological limitations that limited Amazon’s ability to interpret the results and determine whether any clarity changes improved customer comprehension of Prime material terms.

3. On February 24, 2025, the FTC submitted reports by Prof. Marshini Chetty (“Prof. Chetty” and “Chetty Opening Report”) and Dr. William Violette (“Dr. Violette” and “Violette Opening Report”).

¹ Expert Report of Donna L. Hoffman, Ph.D., February 24, 2025 (“Hoffman Opening Report”), ¶ 22.

- a. Prof. Chetty was asked to assess whether the design of Amazon Prime’s enrollment process during online checkout (i) confuses consumers; (ii) conveys information on Prime’s material terms that consumers can comprehend; and (iii) whether the design of the Prime Iliad and Iliad 2.0 cancellation processes confuses consumers.² To address these questions, among others, Prof. Chetty conducted a “cognitive walkthrough” of Amazon Prime’s enrollment process during online checkout and of Amazon Prime’s cancellation process.³
- b. Dr. Violette was asked to review and evaluate, among others, six “weblab” tests Amazon conducted on modifying the Prime signup processes (the “Signup Weblabs”).⁴ Dr. Violette assessed whether Amazon’s Signup Weblabs complied with generally accepted criteria for valid field experiments and used statistical methods to evaluate the statistical significance of the results of these weblabs.⁵

4. I was asked to review and evaluate the Chetty Opening Report and in particular the conclusions it reaches on the basis of the “cognitive walkthrough” regarding: (i) whether the Amazon Prime checkout processes contain UI design elements, including alleged “dark patterns,” that render the information about the enrollment into Prime confusing and the terms of the subscription hard to comprehend; and (ii) whether Amazon cancellation flows include UI design elements, including alleged “dark patterns,” that complicate the cancellation process.⁶

I was also asked to review and evaluate Dr. Violette’s analysis of Amazon’s Signup Weblabs.

5. In forming my opinions and conclusions, I relied on my academic expertise and experience in marketing and consumer behavior. A full list of the documents I have considered is in **Appendix B**.

6. I have been assisted in my work on this matter by staff of Cornerstone Research, who worked under my direction. I am being compensated at my current rate of \$950 per hour. I also receive compensation from Cornerstone Research based on its collected staff billings for its support of me in this matter. Neither my compensation in this matter nor my compensation from

² Expert Report of Marshini Chetty, Ph.D., February 24, 2025 (“Chetty Opening Report”), ¶ 25.

³ Chetty Opening Report, ¶¶ 82–84.

⁴ Expert Report of William J. Violette, Ph.D., February 24, 2025 (“Violette Opening Report”), ¶ 2.

⁵ Violette Opening Report, ¶ 12.

⁶ See, e.g., Chetty Opening Report, ¶ 27.

Cornerstone Research is in any way contingent or based on the content of my opinions or the outcome of this or any other matter.

7. I reserve the right to supplement or amend my opinions should additional information become available.

II. Summary of Opinions

8. Based on my professional expertise, experience, and knowledge, and my review of Chetty Opening Report, Violette Opening Report, and the information available to me in this case, I have developed the following opinions.

9. ***Opinion 1: The Literature on “Dark Patterns” That Prof. Chetty References Does Not Provide an Adequate Basis to Evaluate the At-Issue UI Design Elements***

- a. Prof. Chetty introduces a definition of “dark patterns,” and an “ontology” of “dark patterns” developed by Prof. Colin M. Gray and coauthors (“Gray’s Ontology”), which she uses to inform her “cognitive walkthrough” of the enrollment and cancellation processes. Gray’s Ontology, like much of the existing literature on “dark patterns,” is entirely descriptive, lacks rigor, and reaches conclusions based on analyses that would be hard to replicate. As such, Gray’s Ontology does not provide a scientific framework that can be used to reliably identify “dark patterns” or analyze the purported effect of “dark patterns” on consumers.
- b. Prof. Chetty also references empirical research on “dark patterns,” which she claims demonstrates that “dark patterns effectively manipulate [consumers] to select choices that benefit the service provider.”⁷ To offer support for Prof. Chetty’s claims, these studies would have to measure consumers’ cognitive states to confirm that consumers have been “manipulated” and assess marketers’ intent, to the extent that Prof. Chetty implies that “benefit[ing] the service provider” implicates marketers’ intent. These studies, however, do not assess marketers’ intent, nor do they examine consumers’ cognitive states (and if they do, they present results that are difficult to generalize because of the ad hoc way in which

⁷ Chetty Opening Report, ¶ 46.

“dark patterns” are treated), nor do they even examine “dark patterns” in contexts that are related to ecommerce (e.g., social networking platforms, or cookie consent notices).

10. ***Opinion 2: Prof. Chetty’s Conclusions From the “Cognitive Walkthrough” of the Amazon Prime Enrollment and Cancellation Processes Are Flawed and Unreliable.***

Prof. Chetty claims that UI design elements in the Amazon enrollment and cancellation processes contain “dark patterns,” in part based on her findings from a “cognitive walkthrough” (i.e., her subjective inspection of the interface) of the “Prime enrollment points” within Amazon’s online checkout process and two cancellation processes for Amazon Prime. My review of Prof. Chetty’s “cognitive walkthrough” reveals that her analyses are susceptible to the following shortcomings, and her conclusions are flawed and contradict established findings from the literature on online consumer behavior and experience.

- a. Prof. Chetty does not systematically support her conclusions regarding the presence of “dark patterns” and their claimed impact on consumers with evidence. Many of her claims are simply based on her own say-so.
- b. Prof. Chetty’s examination of individual pages in isolation in her “walkthrough” (e.g., the UPDP, the Shipping Option Select Page (“SOSP”), etc.) is flawed and unreliable. Specifically, this approach fails to take into account the way consumers would experience these pages in the real world, i.e., as part of a process that is informed by the information and choices available on other Amazon pages in the enrollment or cancellation process, as well as consumers’ goals, motivations, prior experiences, and likely familiarity with the at-issue UI design elements (or those similar to them). By analyzing each page in the flow in a vacuum, Prof. Chetty’s analysis is disconnected from the additional factors and context that would likely affect whether or not consumers would be “deceived” or “manipulated” by the at-issue UI design elements as she opines.
 - i. Prof. Chetty does not consider whether consumers are likely to be familiar with the UI design elements used by Amazon in Prime enrollment and cancellation processes (or those similar to them). In addition to making flawed and unreliable claims that Amazon enrollment and cancellation

processes contain “dark patterns,” Prof. Chetty also fails to recognize that the UI design elements she takes issue with are actually commonly used in the desktop enrollment and cancellation processes of the 48 popular paid digital membership/subscription programs I reviewed for my comparative analysis in the Hoffman Opening Report. I further expanded this analysis to assess whether the website contains a webpage that is an “interruption” of the consumer’s enrollment or purchase process, a design element that is central to Prof. Chetty’s claims regarding the presence of alleged “dark patterns” in Amazon’s Prime enrollment processes within online checkout. I found that around half of the programs in my analysis contain such webpages, which makes a webpage that is an “interruption” of the consumer’s enrollment or purchase process a commonly used UI design element online. This suggests that many consumers are likely to be familiar with such “interruptions.”

- ii. In addition, Prof. Chetty’s claims ignore that Amazon’s Prime cancellation processes are consistent with the commonly used principles of progressive disclosure, which aim to present the right amount of information to consumers while minimizing the mental effort required to navigate the interface. The progressive disclosure of information in the cancellation process provides consumers with the benefits and costs associated with Prime membership in a gradual way that is unlikely to overwhelm the consumer, so that they can make an informed choice about canceling. The progressive disclosure makes it easier for consumers to access information they want to learn about and less likely for consumers to make errors (e.g., cancel by mistake or cancel from a lack of understanding).
- c. Prof. Chetty does not consider whether the UI design elements used by Amazon in Prime enrollment and cancellation processes, with which she takes issues, are legitimate marketing practices. Specifically,
 - i. Prof. Chetty’s claims relating to Prime enrollment processes fail to recognize that cross-selling (a marketing technique designed to offer

existing customers the opportunity to purchase additional products or services that are related to the products they are currently purchasing), and the use of repetition in marketing communications (including repetition of the benefits of the product or the services offered) to improve persuasiveness of the communication, are legitimate marketing practices that are commonly used by a variety of companies.

- ii. Prof. Chetty's claims relating to Prime cancellation processes fail to recognize that reminding consumers of the benefits of the company's products and services, and offering consumers additional information and alternative options other than canceling during the cancellation process are legitimate and commonly used marketing practices, as consumers have different motivations for entering a cancellation process, and not all consumers who enter the cancellation process may be completely set on canceling or may change their minds when presented with relevant information.
- d. Prof. Chetty's claim that consumers would be manipulated by the alleged "dark patterns" because they "typically" engage with online interfaces using System 1 thinking (an automatic and intuitive process that quickly guides decisions and behaviors using mental shortcuts and minimal conscious effort) is overly simplistic. Prof. Chetty's claim overlooks established findings from the consumer psychology and online consumer behavior literatures which has established conceptually and empirically that consumers' online navigations may invoke System 2 thinking or alternate between System 1 and System 2 thinking during the same navigation.
- e. Prof. Chetty's claims for mobile enrollment and cancellation processes fail to recognize that many consumers are likely familiar with details being presented over multiple mobile screens or pages that require scrolling to navigate, and Amazon mobile pages and processes follow the commonly used principles of progressive disclosure.

11. ***Opinion 3: Dr. Violette’s Review of “Amazon’s Signup Weblabs” Overlooks Their Methodological Limitations, Does Not Overcome Them, and Provides No Insight into Whether the Weblabs Resulted in Clarity Improvements***

- a. Dr. Violette analyzes six Signup Weblabs that Amazon included in an internal “meta-analysis” it conducted in 2021. The six Signup Weblabs Dr. Violette analyzes represent a limited and ad hoc selection of online experiments conducted by Amazon between 2018 and 2020, which aimed to test whether certain UI design changes meant to improve the clarity of the UPDP page had an impact on consumer enrollment and retention into Prime. First, Dr. Violette concludes that the six Signup Weblabs meet accepted standards for economic field experiments and surveys. Then, for each of the weblabs, Dr. Violette performs a statistical analysis of the differences in the value of certain consumer behavior metrics between the treatment and control groups (e.g., signup rate, conversion rate to paid member at 90 days and 12 months) and concludes that these differences are measured with high statistical precision and, in most cases, are statistically significantly different from zero. Finally, Dr. Violette concludes that, for each weblab, purported clarity improvement caused signups to be lower in the treatment group relative to the control group.
- b. Dr. Violette does not provide any support for his conclusion that, in the six Signup Weblabs that he analyzed, any improvement in *clarity* had a causal effect on signups, other than his own say-so. His statistical analysis of behavioral metrics in the six Signup Weblabs does not provide a basis for such an opinion because:
 - i. Dr. Violette does not consider that the six Signup Weblabs he analyzed appear to have been selected for Amazon’s “meta-analysis” based on ad hoc criteria determined by a small group of Amazon employees. This means that Dr. Violette does not demonstrate that the six Signup Weblabs present a complete and reliable assessment of the impact of clarity improvement initiatives on consumers’ signups and cancellation decisions.

- ii. Dr. Violette does not account for methodological limitations of the Signup Weblabs, including the presence of confounded treatments and the lack of a systematic preliminary analysis of whether the UI changes were addressing sources of confusion. This prevents him from drawing reliable conclusions about the causal impact of clarity on the observed behavioral metrics.
- iii. Dr. Violette cannot assess whether consumers perceived the UI design changes examined in the Signup Weblabs as more clear or less confusing because the Signup Weblabs do not capture any cognitive metrics about consumers' cognitive states.
- iv. Dr. Violette ignores changes for behavioral metrics included in the Signup Weblabs that are at odds with Amazon's expectations regarding the impact of an improvement in clarity of the UPDP page.
- v. Dr. Violette does not consider factors other than clarity that can impact the results of the Signup Weblabs.

III. The Literature on “Dark Patterns” That Prof. Chetty References Does Not Provide an Adequate Basis to Evaluate the At-Issue UI Design Elements

12. Prof. Chetty defines “dark patterns” as “user interface design choices that coerce, deceive, or manipulate users into making a decision that, if fully informed or otherwise capable of selecting an alternative, they would not have made.”⁸ After introducing this definition, Prof. Chetty introduces an “ontology” of “dark patterns” developed by Prof. Colin M. Gray and coauthors, Gray’s Ontology,⁹ which she uses to inform her “cognitive walkthrough” of Amazon’s Prime enrollment and cancellation processes, and discusses empirical research on “dark patterns,” which she claims demonstrates that “dark patterns effectively manipulate [consumers] to select choices that benefit the service provider.”¹⁰ These literature references,

⁸ Chetty Opening Report, ¶ 36.

⁹ Gray, C. M. et al. (2024), “An Ontology of Dark Patterns Knowledge: Foundations, Definitions, and a Pathway for Shared Knowledge-Building,” *CHI Conference on Human Factors in Computing Systems*, 289, 1–22 (“Gray et al. (2024)”).

¹⁰ Chetty Opening Report, ¶ 46.

however, do not provide Prof. Chetty with the proper scientific basis to reach conclusions regarding the presence of alleged “dark patterns” in the UI design elements at issue in this matter.

13. As I discussed in the Hoffman Opening Report, the current literature on “dark patterns” generally lacks a scientific approach and is driven by vague, primarily descriptive definitions that are not rigorously operationalized, devoid of formally specified hypotheses, and not supported by any replicable hypothesis testing.¹¹ This absence of a scientific approach in the literature means that legitimate marketing practices intended to influence consumers through persuasion can be misidentified as practices that contain “dark patterns” and that “trick or manipulate” consumers.¹² Importantly, a scientific framework goes beyond description. In the context of the UI design elements at issue, a scientific framework requires one to establish: (i) a clear definition of what constitutes “dark patterns,” (ii) the variable(s) of interest to measure, and (iii) a reliable and replicable method to test whether the variable(s) of interest has any significant impact on consumers.¹³

14. Gray’s Ontology, which according to Prof. Chetty is the “most comprehensive, frequently used, and recent taxonomy of dark patterns[,]”¹⁴ does not meet this bar. Instead, it is entirely descriptive, lacks rigor, and reaches conclusions based on a methodology that would be hard to replicate.

15. Gray’s Ontology largely summarizes existing taxonomies of “dark patterns” in an attempt to reconcile “disparate terminolog[ies] from scholars and regulators.”¹⁵ And while it develops a three-level (“high,” “meso,” and “low”) categorization of “dark patterns” that adds to the existing literature,¹⁶ this new categorization is also *entirely descriptive*.¹⁷ As such, like previous

¹¹ Hoffman Opening Report, ¶ 60.

¹² Hoffman Opening Report, ¶ 51.

¹³ Hoffman Opening Report, ¶ 67.

¹⁴ Chetty Opening Report, ¶ 50.

¹⁵ Gray et al. (2024), p. 3.

¹⁶ Gray et al. (2024), p. 2 (“[W]e introduce the hierarchical concepts of low-level, meso-level, and high-level dark patterns to the literature.”).

¹⁷ See, e.g., Gray et al. (2024), p. 2 (“To create this preliminary ontology, we build upon ten contemporary taxonomies of dark patterns from both the academic and regulatory literature, and thereafter we identify three levels of hierarchy for pattern types. Hence we *harmonize concepts across these taxonomies* to provide a consistent and consolidated, shared, and reusable dark patterns ontology.”), p. 3 (“[W]e *describe* a common definition syntax, set of

studies of “dark patterns” in the literature, Gray’s Ontology does not provide a scientific framework that can be used to reliably identify “dark patterns” or to analyze the purported effect of “dark patterns” on consumers.¹⁸

16. Furthermore, because Gray’s Ontology is a summary of existing, descriptive literature on “dark patterns,” it suffers from similar limitations and lack of rigor. As explained in the Hoffman Opening Report, descriptive studies of “dark patterns” are subjective in nature, difficult to replicate, and do not offer a scientifically established consensus of what a “dark pattern” is.¹⁹ Gray’s Ontology explicitly acknowledges the fragmentary and disparate nature of this descriptive literature. For instance, Gray and coauthors observe that “we currently lack a shared landscape of definitions, types, and language to unify the study of dark patterns,”²⁰ and that “[t]his diversity of research has led some scholars to propose fragmentary, domain-specific typologies without necessarily finding commonalities across domains.”²¹ As a further illustration of this issue, Gray’s Ontology relies on an earlier taxonomy developed by Gray et al. (2018) to guide its categorization of “dark patterns,”²² which, as noted in Soe et al. (2020), is based on subjective judgments that are “sometimes overlapping” in their categorization of “dark patterns,” making it “difficult to decide which category different ‘problems’ belong to.”^{23, 24}

definitions, and hierarchy of dark patterns that aligns *disparate* terminology from scholars and regulators... Our work unifies practitioner, scholarly, and regulatory efforts that *describe* the range of dark patterns, leading to a shared vocabulary and ontology.”) (emphasis added).

¹⁸ Although the authors consider the mechanisms by which “dark patterns” can affect consumers in their development of the ontology, they do not offer a conceptual framework to analyze any such mechanisms. See Gray et al. (2024), p. 8 (“Across our 5 high-level pattern definitions, we considered ... a range of mechanisms that could be used to limit users’ autonomy, decision-making, or free choice.”) (emphasis omitted).

¹⁹ Hoffman Opening Report, ¶ 50 (“[T]he concept of ‘dark patterns’ is based on a nebulous and subjective construct lacking in reliability and validity. To date, the academic literature that discusses ‘dark patterns’ ... is driven by vague, primarily descriptive definitions that are not supported by testing, replicable or otherwise.”), ¶ 68 (“As an initial matter, there is no scientifically established consensus on the definition of what constitutes ‘dark patterns.’”).

²⁰ Gray et al. (2024), p. 3.

²¹ Gray et al. (2024), p. 2.

²² Gray et al. (2024), p. 3.

²³ Soe, T. H. et al. (2020), “Circumvention by Design - Dark Patterns in Cookie Consents for Online News Outlets,” *Nordic Conference on Human-Computer Interaction*, 19, 1–12, p. 8.

²⁴ As a further indication of the lack of rigor of Gray’s Ontology, Colin Gray and coauthors use different definitions of “dark patterns” depending on the study, which contradict each other when it comes to the relevancy of the designer’s intent for identifying designs that are “dark patterns.” Specifically, Gray’s Ontology defines “dark patterns” as design choices that “subvert, impair, or distort the ability of a user to make autonomous and informed choices in relation to digital systems *regardless of the designer’s intent*.” See Gray et al. (2024), p. 1 (emphasis added). However, in another article, which Prof. Chetty does not cite in her report, the same authors define “dark

17. Finally, the way in which Gray and coauthors constructed Gray's Ontology is not amenable to replication and further compounds the subjectivity of the underlying materials. Gray and coauthors relied on what they call a "qualitative content analysis approach" to develop their three-level categorization of "dark patterns" by engaging in "conversation amongst the researchers."²⁵ Additional details Gray and coauthors provide about the way they developed their hierarchy and the definitions for the ontology further underscore how the process involved subjective judgment and lacked rigor. Indeed, it would be difficult to replicate by a different team of researchers. For example, Gray and coauthors explain that:

- a. "We grouped patterns that appeared either to be identical or similar...using definitions to identify affinities among patterns that did not have identical names. This portion of the analysis was the most extensive...We tried out numerous different groupings based on what we understood to be the main focus of each pattern and then sought to characterize what level of pattern each represented."²⁶
- b. "We used an iterative process where two coauthors independently and collaboratively tested different definition structures. Based on these efforts and thorough discussion, we finalized sample definition structures and syntax."²⁷
- c. "As a research team, we read and edited the definitions until we were satisfied with their level of consistency and relationships to the higher-level categories in which they belonged."²⁸
- d. "To create a definitional structure for each level, we first used a subset of approximately ten dark patterns types and definitions in order to 'play-test' a combined and unified definition for dark pattern types at multiple level of granularity."²⁹

patterns" as "instances where *designers* use deceptive, manipulative, or coercive tactics to encourage end users to make decisions that are not in their best interest." See Gray, C. M. et al. (2023), "Mapping the Landscape of Dark Patterns Scholarship: A Systematic Literature Review," *Designing Interactive Systems Conference*, 188–193, p. 1 (emphasis added). These two definitions contradict each other when it comes to the relevancy of the designer's intent for identifying designs that are "dark patterns."

²⁵ Gray et al. (2024), p. 3.

²⁶ Gray et al. (2024), pp. 4–5.

²⁷ Gray et al. (2024), p. 6.

²⁸ Gray et al. (2024), p. 6.

²⁹ Gray et al. (2024), p. 8.

- e. “Not all of our mappings were clear-cut and some may be productively extended or disputed in future versions of this ontology. Through dialogue, we sought to locate existing patterns within our ontology based on our best understanding of the pattern as described by its name and definition in the source taxonomy.”³⁰

18. Prof. Chetty’s own research further underscores the limitations of the current literature on “dark patterns.” For example, Mathur et al. (2019), which Prof. Chetty coauthored and Gray and coauthors use as one input for their ontology, develops an automated web crawler to extract “dark patterns” from over 11,000 shopping websites and discovered instances of “dark patterns” in approximately 11.1% of them.³¹ The methodology used in the paper to identify “dark patterns” depends on the observers’ perspectives, as the authors rely on pre-existing, subjective definitions of “dark patterns” and their individual judgments to classify them.³² Based on these definitions, the authors identify about 1,800 distinct examples of dark patterns in the over 11,000 websites that they crawled and analyzed.³³ Their descriptive approach underscores the difference from a cohesive framework that would enable formulating clear, testable hypotheses to identify “dark patterns” and examine any purported impact on consumers. Indeed, a subsequent article commenting on the results of Mathur et al. (2019) observed that “it [is] impossible to test ... all” of these definitions.³⁴

19. Prof. Chetty discusses in some detail three empirical studies that she claims demonstrate that “dark patterns effectively manipulate [consumers] to select choices that benefit the service

³⁰ Gray et al. (2024), p. 14.

³¹ Mathur, A. et al. (2019), “Dark Patterns at Scale: Findings from a Crawl of 11K Shopping Websites,” *Proceedings of the ACM on Human-Computer Interaction*, 3, CSCW, 81, 1–32 (“Mathur et al. (2019)”), p. 2.

³² Mathur et al. (2019), p. 5 (“We ground [our] taxonomy in the literature on online manipulation and by studying the types of dark patterns highlighted in previous work.”), p. 11 (“The research team used the literature on dark patterns...to create a shared understanding of possible dark patterns using the examples cited in these works to guide our thinking...The team then discussed the resulting dark patterns, and iteratively grouped them into types and broader categories.”).

³³ Mathur et al. (2019), p. 2. Note that Mathur et al. (2019) only examines text-based, as opposed to image-based, “dark patterns” on product, cart, and checkout pages. See Mathur et al. (2019), pp. 11–12 (“[O]ur analyses only took text-based user interfaces into account.”), p. 6 (“We designed a web crawler capable of navigating users’ primary interaction path on shopping websites:...discover pages containing products on a website, add these products to the cart, and check out.”).

³⁴ Sin, R. et al. (2022), “Dark Patterns in Online Shopping: Do They Work and Can Nudges Help Mitigate Impulse Buying,” *Behavioral Public Policy*, 1–27, p. 3. See also Hoffman Opening Report, ¶ 75.

provider.”³⁵ However, based on my review, these studies do not support Prof. Chetty’s claim that “dark patterns effectively manipulate” consumers to the benefit of the service provider. To offer support for Prof. Chetty’s claims, these studies would have to measure consumers’ cognitive states to confirm that consumers have been “manipulated.” In addition, these studies would have to assess marketers’ intent, to the extent that Prof. Chetty implies that “benefit[ing] the service provider” implicates marketers’ intent.³⁶ Two of these studies, however, do not even attempt to assess consumers’ cognitive states, while one of them does so in a way that does not generalize to other settings. Furthermore, none of these studies assess marketers’ intent. Finally, the results of these three studies are difficult to generalize because of the ad hoc way in which they incorporate “dark patterns” in the UI design elements that they test. Specifically:

- a. Luguri and Strahilevitz (2021) is the first study that Prof. Chetty discusses.³⁷ The authors conduct two experiments and compare consumers’ likelihoods to subscribe to a privacy protection service under different “dark pattern” treatment conditions. As explained in the Hoffman Opening Report, this study does not assess consumers’ cognitive states or marketers’ intent.³⁸ Additionally, the ad hoc nature with which the authors incorporate “dark patterns” in their experimental design makes it difficult to generalize their results to other settings.³⁹

³⁵ Chetty Opening Report, ¶ 46. *See also* Luguri, J. and L. J. Strahilevitz (2021), “Shining a Light on Dark Patterns,” *Journal of Legal Analysis*, 13, 1, 43–109 (“Luguri and Strahilevitz (2021)”); Utz, C. et al. (2019), “(Un)informed Consent: Studying GDPR Consent Notices in the Field,” *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security*, pp. 973–990 (“Utz et al. (2019)”; Zac, A. et al. (2025), “Dark Patterns and Consumer Vulnerability,” *Behavioural Public Policy*, 1–50 (“Zac et al. (2025)”).

³⁶ Hoffman Opening Report, ¶ 62 (“Other academic literature tries to narrow the definition of ‘dark patterns’ by instituting the element of deception and manipulation by the company on consumers against their will. Accordingly, to determine if a marketing practice meets these definitions, one needs to assess both marketers’ intent and consumer’s cognitive state of mind for a given practice or UI design element to see if it constitutes a ‘dark pattern’ versus a legitimate marketing strategy.”).

³⁷ Chetty Opening Report, ¶ 46 (i); Luguri and Strahilevitz (2021).

³⁸ Hoffman Opening Report, ¶ 70 (“Although confusion is a cognitive state that can arise from specific aspects of a UI, in the case of Luguri and Strahilevitz (2021), the authors do not identify or put forward any mechanism to specify which variable of interest should be used to measure consumer confusion, despite using that effect to define ‘dark patterns.’ Similarly, the authors do not offer any mechanism to specify which variable of interest can be used to evaluate companies’ intention as the authors do not try to evaluate that in their study.”).

³⁹ Hoffman Opening Report, ¶ 73 (“Because of the ad hoc nature of these interface patterns, it is simply not possible to extrapolate the consumer response to the ‘dark patterns’ as described and analyzed in this study to other settings, nor to make empirical generalizations.”).

- b. Prof. Chetty also discusses Zac et al. (2025).⁴⁰ The authors conduct an online experiment and compare consumers' likelihoods to accept the offer of a fictitious investment product under different "dark pattern" treatment conditions, by recording the binary outcome of consumers' decision making (i.e., accept/do not accept the product).⁴¹ The authors, however, do not measure any aspect of consumers' cognitive states that could be affected by the presence of the purported "dark patterns."⁴² Similarly, they do not provide any guidance on which variables should be used to assess marketers' intent, despite the fact that their definition of "dark patterns" includes it.⁴³ As with Luguri and Strahilevitz (2021), the authors incorporate design features in the online interface they used for the experiment which they claim, without testing, are "dark patterns." This ad hoc way of incorporating "dark patterns" in the research design simply assumes marketers' intent and limits the empirical generalization of their results.⁴⁴

⁴⁰ Chetty Opening Report, ¶ 46 (iii); Zac et al. (2025).

⁴¹ Zac et al. (2025), p. 8 ("[T]o ensure a natural online environment (semi-field experiment), we created a genuine website for a (fictitious) algorithm-driven investment product."), p. 12 ("We adopted a between-subjects design, such that participants were randomly assigned to different dark pattern treatment conditions."), p. 15 ("Participants' first choice about whether to accept the offer in conditions they were assigned to ... This choice was coded as a binary variable, where 1 refers to a choice to proceed to payment page, and 0 means offer not accepted."), p. 19 ("To ... investigate the effects of dark patterns on our sample participants, we ... predict the average likelihood that participants, by condition, would accept the offer.").

⁴² The authors recognize this study does not allow them to "establish the formal psychological and cognitive mechanisms" that might have driven consumers' acceptance decision. *See* Zac et al. (2025), p. 27. Although participants of the experiment were asked "questions about their feelings and views about the design of the website (e.g., on a 1–5 Likert scale or yes/no indicators)," the purpose of this "website evaluation" was to "familiari[ze] them with the product." *See* Zac et al. (2025), pp. 8, 12. This step occurred before participants were exposed to "dark pattern" treatment conditions, and the authors make no use of participants' responses to this "website evaluation" in their subsequent comparison of the effects of "dark patterns" on participants' choice outcomes. In addition, this study at best only shows that purported "dark patterns" may increase the interest of some study participants in the fictitious investment product presented to them but not necessarily their decision to purchase the product. In particular, the study does not examine what drives these purchase decisions. *See* Zac et al. (2025), p. 19 ("[Our results] impl[y] that ... dark patterns were effective in increasing the acceptance rates for the offer we made to participants. However, when confronted with a second decision point involving payment for the service, the effectiveness ... weakens.").

⁴³ Zac et al. (2025), p. 1 ("Dark patterns are online user interfaces which seek to subvert, manipulate or impair [consumer] autonomy, decision-making or choice.").

⁴⁴ Zac et al. (2025), p. 10 ("After participants completed what they considered to be the main task ... they now had an opportunity to buy the product in question. It is at this stage that we subjected the participants to dark patterns. Specifically, the pop-up offer messages presented to participants varied according to the dark pattern condition they were (randomly) assigned to."). The generalizability of their study is further limited by potential selection bias in the sample of their participants, which the authors acknowledge. *See* Zac et al. (2025), p. 28 ("There may be a selection bias (volunteer bias) of our sample which may reduce the generalizability [sic] of the study results.").

- c. Lastly, Prof. Chetty discusses Utz et al. (2019).⁴⁵ The authors conduct online experiments to study the influence on consumers' consent decisions regarding cookie consent notices (which is a different context compared to Amazon Prime flows at issue) that incorporate purported "dark patterns."⁴⁶ Although the authors do not measure consumers' cognitive states during their interaction with consent notices and only record acceptance rate, they conduct a follow-up survey at the end of the experiments that asks consumers questions about their perception of the consent notices they were exposed to.⁴⁷ By the authors' own admission, however, this survey has limitations such as "low response rate" and "participants' self-selection" bias.⁴⁸ These limitations make it difficult to generalize the results of this survey to other settings. Finally, this paper does not specify any variables of interest to measure or otherwise assess marketers' intent, despite claiming that marketers "often have an interest" in "nudg[ing]" consumers to accept cookies.⁴⁹

20. As further support for her characterization of "dark patterns" and their purported impact on consumers, Prof. Chetty also references (but does not discuss in detail) several other descriptive and empirical studies.⁵⁰ These studies have similar limitations to the ones I discussed above. Specifically, the referenced descriptive studies rely on vague and subjective descriptions of "dark patterns," and the referenced empirical studies examine "dark patterns" in contexts that

⁴⁵ Chetty Opening Report, ¶ 46 (ii); Utz et al. (2019).

⁴⁶ Utz et al. (2019), p. 973 ("In this work, we identify common properties of the graphical user interface of consent notices and ... investigate the influence of notice position, type of choice, and content framing on consent."), p. 978 ("[One of our] research question[s] therefore was: Does the number of choices and nudging through emphasis or pre-selection in consent notices influence user's consent decisions?") (emphasis omitted). The authors do not formally define "dark patterns" and only refer to "Nudging & Dark Patterns" as interface designs that "steer website visitors towards accepting privacy-unfriendly options." See Utz et al. (2019), p. 976 ("Nudging & Dark Patterns. Consent notices often (57.4 %) use interface design to steer website visitors towards accepting privacy-unfriendly options.").

⁴⁷ Utz et al. (2019), p. 974 ("In a short follow-up survey answered by more than 100 participants, we ask website visitors to voluntarily report the motivation for their selection, how they perceive the notice they have seen, and how they expect consent notices to function in general.").

⁴⁸ Utz et al. (2019), p. 979 ("Due to a low survey response rate we received few responses for some conditions. We therefore refrained from a quantitative analysis of survey responses."), p. 985 ("Responses to our voluntary survey are likely biased due to participants' self-selection. Responses to the question about possible data collection suggest that participants had a good understanding of the technical background or an interest in privacy.").

⁴⁹ Utz et al. (2019), pp. 977–978.

⁵⁰ See **Appendix B**.

are unrelated to ecommerce (e.g., social networking platforms), or do not assess marketers' intent, or do not examine consumers' cognitive states, or, if they do, present results that are difficult to generalize because of the ad hoc way in which "dark patterns" are treated. Some of these studies stand out for their lack of relevance. For example, some of the articles that Prof. Chetty portrays as having "created ontologies and taxonomies of dark patterns to label and classify manipulative designs,"⁵¹ do not explicitly study or even mention the term "dark patterns."⁵²

21. The fact that literature sources like Gray's Ontology or the empirical studies that Prof. Chetty references do not offer a scientific framework to identify "dark patterns" or assess their purported impact on consumers, and are littered with vague and subjective definitions, is particularly important for the "cognitive walkthrough" analysis that Prof. Chetty performs in her report. As discussed in the Hoffman Opening Report, applying these vague and subjective definitions, as Prof. Chetty does, can risk misidentifying commonly used legitimate marketing practices as "dark patterns."⁵³ This issue has been specifically recognized in the academic literature on "dark patterns," including by studies cited in Gray's Ontology. For example, Mathur et al. (2021) observes that the "current academic discourse about dark patterns is built on a shaky foundation" due to the lack of both a "singular, unified concern or definition" of "dark patterns" and a "clear and consistent conceptual foundation" to study "dark patterns."⁵⁴ This has led to critics dismissing "dark patterns" research as "academic handwringing" about online marketing practices that are "commonplace for offline businesses."⁵⁵ Mathur et. al. (2021) concludes by highlighting the importance of "developing metrics and methods" to objectively evaluate "dark

⁵¹ Chetty Opening Report, ¶ 49.

⁵² See, e.g., Kumar, P. C. et al. (2019), "Privacy and Security Considerations for Digital Technology Use in Elementary Schools," *CHI Conference on Human Factors in Computing Systems*, 307, 1–13. See also Lewis, C. et al. (1990), "Testing a Walkthrough Methodology for Theory-Based Design of Walk-Up-and-Use Interfaces," *CHI Conference on Human Factors in Computing Systems*, 235–242. See also Nielsen, J. (1994), "Usability Inspection Methods," *CHI Conference on Human Factors in Computing Systems*, 413–414.

⁵³ Hoffman Opening Report, ¶ 60.

⁵⁴ Mathur, A. et al. (2021), "What Makes a Dark Pattern...Dark? Design Attributes, Normative Considerations, and Measurement Methods," *Conference on Human Factors in Computing Systems*, 360, 1–18 ("Mathur et al. (2021)"), pp. 1, 2, 7.

⁵⁵ Mathur et al. (2021), p. 2.

patterns.”⁵⁶ Yet, Prof. Chetty does not rely on any objective metrics and methods in her “cognitive walkthrough” analysis as I explain below.

IV. Prof. Chetty’s “Cognitive Walkthrough” of the Amazon Prime Enrollment and Cancellation Processes Is a Subjective Assessment That Ignores Basic Tenets of Online Consumer Behavior and Experience, Including Consumers’ Likely Familiarity with At-Issue UI Design Elements, and Prof. Chetty’s Conclusions Based on This Analysis are Flawed and Unreliable

22. In the Hoffman Opening Report, I evaluated the UI design elements at issue in Amazon Prime enrollment and cancellation processes on the basis of the literature on online consumer behavior, established insights from marketing science research and marketing practice, and conducted my own comparative analysis of the prevalence of the UI design elements at issue in other companies’ enrollment and cancellation processes. Based on this rigorous and comprehensive approach, I concluded that the FTC’s claims about the at-issue UI design elements show a lack of consideration for standard marketing practices, are inconsistent with the basic tenets of online consumer behavior and experience, and ignore consumers’ likely familiarity with these UI design elements (or those similar to them).⁵⁷ These shortcomings severely undermine the FTC’s claims regarding whether the at-issue UI design elements in Amazon Prime’s enrollment and cancellation processes would “trick,” “manipulate,” or “mislead” consumers and influence their behaviors or “complicate” these processes in the alleged manners.⁵⁸

23. Prof. Chetty made similar claims regarding the at-issue UI design elements as did the FTC. These claims stem, in part, from her “cognitive walkthrough” (i.e., her subjective

⁵⁶ See Mathur et al. (2021), p. 25. Two other studies that Prof. Chetty references also observe that more research is needed to objectively evaluate the impact of specific “dark patterns” on consumers. See Gunawan, J. et al. (2021), “A Comparative Study of Dark Patterns Across Mobile and Web Modalities,” *Proceedings of the ACM on Human-Computer Interaction*, 5, CSCW2, 1–29, p. 22 (“[W]e note that more empirical research is needed, especially targeted studies per dark pattern and dark pattern category.”); Di Geronimo, L. et al. (2020), “UI Dark Patterns and Where to Find Them: A Study on Mobile Applications and User Perception,” *CHI Conference on Human Factors in Computing Systems*, p. 9 (“We argue that more research on the harmfulness of each specific Dark Pattern category should be conducted ... Furthermore, it is still unknown whether there exist specific instances of a certain malicious design category that are more problematic than others.”).

⁵⁷ Hoffman Opening Report, ¶ 28.

⁵⁸ Hoffman Opening Report, ¶ 26.

inspection of the interface) of the design of Amazon’s online checkout process where consumers could enroll in Prime, and the design of Amazon’s Prime cancellation processes. Prof. Chetty used her “cognitive walkthrough” in her evaluation of each page in these processes and made her determinations on whether they aligned with “well-established heuristics,” including Gray’s Ontology.⁵⁹ Because Gray’s Ontology cannot provide a proper scientific framework to identify and evaluate “dark patterns” as discussed in Section III above, Prof. Chetty’s “cognitive walkthrough” suffers from the same limitations.

24. Moreover, my analysis reveals that Prof. Chetty’s “cognitive walkthrough” is susceptible to the following shortcomings, and her conclusions are flawed and contradict established findings from the literature on online consumer behavior and experience.

- a. Prof. Chetty does not systematically support her conclusions regarding the presence of “dark patterns” and their claimed impact on consumers with evidence. Many of her claims are simply based on her own say-so.
- b. Prof. Chetty’s examination of individual pages in isolation in her “walkthrough” (e.g., the UPDP page, the SOSF page, etc.) is flawed and unreliable. Specifically, this approach fails to take into account the way consumers would experience these pages in the real world, i.e., as part of a process that is informed by the information and choices available on other Amazon pages in the enrollment or cancellation process, as well as consumers’ goals, motivations, prior experiences, and likely familiarity with the at-issue UI design elements (or those similar to them). By analyzing each page in the flow in a vacuum, Prof. Chetty’s analysis is disconnected from the additional factors, and context that would likely affect whether or not consumers would be “deceived” or “manipulated” by the at-issue UI design elements as she opines.
- c. Prof. Chetty does not consider whether consumers are likely to be familiar with the UI design elements used by Amazon in Prime enrollment and cancellation processes (or those similar to them). In addition to making flawed and unreliable claims that Amazon enrollment and cancellation processes contain “dark

⁵⁹ Chetty Opening Report, ¶ 83.

patterns,” Prof. Chetty also fails to recognize that the UI design elements she takes issue with are actually commonly used in the desktop enrollment and cancellation processes of the 48 popular paid digital membership/subscription programs I reviewed for my comparative analysis in the Hoffman Opening Report. I further expanded this analysis to assess whether the website contains a webpage that is an “interruption” of the consumer’s enrollment or purchase process, a design element that is central to Prof. Chetty’s claims regarding the presence of alleged “dark patterns” in Amazon’s Prime enrollment processes within online checkout. I found that around half of the programs in my analysis contain such webpages, which makes a webpage that is an “interruption” of the consumer’s enrollment or purchase process a commonly used UI design element online. This suggests that many consumers are likely to be familiar with such “interruptions.”

- d. In addition, Prof. Chetty’s claims ignore that Amazon’s Prime cancellation processes are consistent with the commonly used principles of progressive disclosure, which aim to present the right amount of information to consumers while minimizing the mental effort required to navigate the interface. The progressive disclosure of information in the cancellation process provides consumers with the benefits and costs associated with Prime membership in a gradual way that is unlikely to overwhelm the consumer, so that they can make an informed choice about canceling. The progressive disclosure makes it easier for consumers to access information they want to learn about and less likely for consumers to make errors (e.g., cancel by mistake or cancel from a lack of understanding
- e. Prof. Chetty does not consider whether the UI design elements used by Amazon in Prime enrollment and cancellation processes, with which she takes issues, are legitimate marketing practices.
- f. Prof. Chetty’s claims relating to Prime enrollment processes fail to recognize that cross-selling (a marketing technique designed to offer existing customers the opportunity to purchase additional products or services that are related to the

products they are currently purchasing), and the use of repetition in marketing communications (including repetition of the benefits of the product or the services offered) to improve persuasiveness of the communication, are legitimate marketing practices that are commonly used by a variety of companies.

- g. Prof. Chetty's claims relating to Prime cancellation processes fail to recognize that reminding consumers of the benefits of the company's products and services, and offering consumers additional information and alternative options other than canceling during the cancellation process are legitimate and commonly used marketing practices, as consumers have different motivations for entering a cancellation process, and not all consumers who enter the cancellation process may be completely set on canceling or may change their minds when presented with relevant information.
- h. Prof. Chetty's claim that consumers would be manipulated by the alleged "dark patterns" because they "typically" engage with online interfaces using System 1 thinking (an automatic and intuitive process that quickly guides decisions and behaviors using mental shortcuts and minimal conscious effort) is overly simplistic. Prof. Chetty's claim overlooks established findings from the consumer psychology and online consumer behavior literature which has established conceptually and empirically that consumers' online navigations may invoke System 2 thinking or alternate between System 1 and System 2 thinking during the same navigation.
- i. Prof. Chetty's claims for mobile enrollment and cancellation processes fail to recognize that many consumers are likely familiar with details being presented over multiple mobile screens or pages that require scrolling to navigate, and Amazon mobile pages and processes follow the commonly used principles of progressive disclosure.

25. In what follows, I discuss specific shortcomings of Prof. Chetty's "cognitive walkthrough" in the context of several pages that Prof. Chetty examines. While my discussion focuses on specific examples as an illustration, the issues I identify apply to all pages Prof. Chetty examines in her "cognitive walkthrough" analysis.

A. Prof. Chetty's Conclusions From the "Cognitive Walkthrough" of the Amazon Prime Enrollment Processes Are Flawed and Unreliable

26. Prof. Chetty examines individual pages of Amazon Prime enrollment flows, i.e., UPDP page, SOSP page, Single Page Checkout ("SPC") page, and the last page of the True Single Page Checkout ("TrueSPC") flow,⁶⁰ in her "cognitive walkthrough" and reaches the conclusion that "the design of the Prime enrollment points...in the [Amazon] online checkout process" on desktop and mobile devices, or what she calls "Prime detours,"⁶¹ are "confusing to some consumers, who, as a result of dark patterns, unintentionally select an option to enroll in Prime when purchasing a product online."⁶² In addition, Prof. Chetty concludes that "Prime detours" do not convey "information on Prime's material terms (cost, end of free trial period, and renewal terms) that consumers can comprehend."⁶³ In this section, using Prof. Chetty's "cognitive walkthrough" of the UPDP page as an illustration (Section IV.A.1), accompanied with a discussion of Prof. Chetty's claims on other Amazon enrollment flows that are different from her claim on the UPDP page (Section IV.A.2), I show that her claims regarding the presence of "dark patterns" in Amazon Prime enrollment processes lack proper basis, do not consider standard marketing practices, are inconsistent with the basic tenets of online consumer behavior and experience, and ignore consumers' likely familiarity with the UI design elements at issue (or those similar to them).

1. Prof. Chetty's Conclusions From the "Cognitive Walkthrough" of the UPDP Page Are Flawed and Unreliable

27. In Exhibit 1 below, I reproduce the desktop UPDP page.⁶⁴

⁶⁰ I understand that Prof. Chetty calls the last page of the TrueSPC flow "TSPC" in the Chetty Opening Report. *See* Chetty Opening Report, ¶¶ 94, 158.

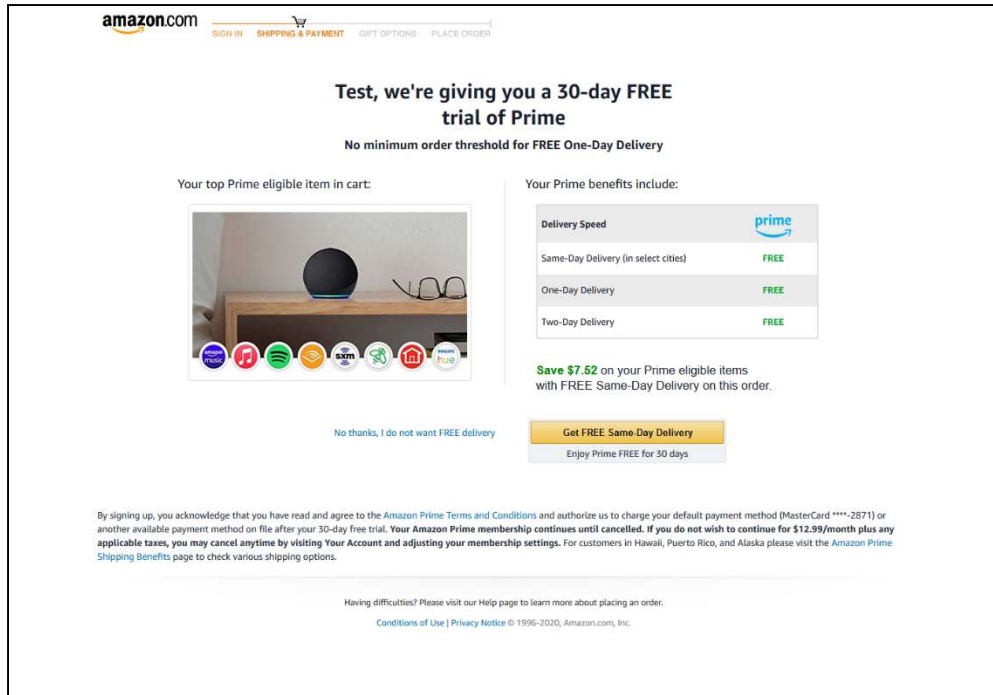
⁶¹ Chetty Opening Report, p. 1.

⁶² Chetty Opening Report, p. 1. *See also* Chetty Opening Report, § VI.f.

⁶³ Chetty Opening Report, p. 1. *See also* Chetty Opening Report, § VI.f.

⁶⁴ Chetty Opening Report, Attachment B, p. 18.

Exhibit 1 UPDP Page on Desktop



Source: Chetty Opening Report, Attachment B, p. 18.

28. Prof. Chetty claims that the UPDP page “interrupts the consumer’s shopping process by presenting them with information on a subscription service—Prime—separate from the product they are buying.”⁶⁵ Prof. Chetty claims that this interruption is an example of “the dark pattern, [n]agging,”⁶⁶ which is a “dark pattern” that was not explicitly discussed in the FTC’s complaint. Prof. Chetty defines “nagging” as repeated interruptions that request the user “to take an action,” and describes that “[n]agging typically occurs to users who are in the midst of completing a primary task.”⁶⁷ Prof. Chetty claims that the UPDP page contains “nagging” because it is an “interruption” that is “unnecessary to placing an order for a product.”⁶⁸ However, Prof. Chetty fails to demonstrate that Amazon consumers considered the UPDP page an “interruption” or that their behavior was affected by this UI design feature in the manner she claims.

⁶⁵ Chetty Opening Report, ¶ 116.

⁶⁶ Chetty Opening Report, ¶ 118.

⁶⁷ Chetty Opening Report, ¶ 55.(i).a.

⁶⁸ Chetty Opening Report, ¶ 118.

29. Importantly, Prof. Chetty fails to ground her description of “interruption” in any academic literature or theory. Prof. Chetty’s description of an “interruption” is an act of “presenting [consumers] with information...separate from the product they are buying,” and one that is “unnecessary to placing an order for a product.”⁶⁹ However, as explained below, not only is this description not grounded in theory, overly broad and vague (and therefore covers commonly used legitimate marketing practices), but even taking this description as given, Prof. Chetty fails to show that the UPDP page is an “interruption.”

30. First, Prof. Chetty’s characterization of the UPDP page as an “interruption” is flawed and is based on her claim that “the UPDP is not clearly related to the consumer’s primary task of placing an order on Amazon.”⁷⁰ She fails to consider that the UPDP page provides benefits to consumers who may be interested in such an offer, which is relevant to the item they are purchasing. As discussed in the Hoffman Opening Report, the claim that the UPDP page is an “interruption” fails to account for several key benefits relevant to consumers’ purchasing decisions on Amazon, including the free delivery benefit highlighted in the Amazon offer, the 30-day free trial that may be valuable for consumers going through the purchase process, and the potential for consumers to enroll in Prime based on information presented during checkout.⁷¹

31. Second, as I discussed in the Hoffman Opening Report, the Prime offer on the UPDP page constitutes a cross-sell, a marketing technique designed to offer existing customers the opportunity to purchase additional products or services that are related to the product they are currently purchasing, which is a legitimate marketing practice in both online and offline contexts.⁷² Cross-sells during the online checkout process are also commonly used and therefore are consistent with expectations of many consumers about online shopping experiences. As I have shown in Section IX of the Hoffman Opening Report, of the 16 companies that sell products or services other than the paid digital memberships/subscription programs (i.e., “Category 1” companies in my comparative analysis), all of them offered a paid digital

⁶⁹ Chetty Opening Report, ¶¶ 116, 118.

⁷⁰ Chetty Opening Report, ¶ 117.

⁷¹ Hoffman Opening Report, ¶¶ 95–98.

⁷² Hoffman Opening Report, ¶¶ 94, 167.

membership/subscription program or a free trial of the program as a cross-sell during the online checkout process.⁷³

32. Prof. Chetty claims that consumers would be manipulated by “dark patterns” because they “typically” engage with online interfaces using “cognitive and behavioral shortcuts (System 1 thinking)” in their online interactions.⁷⁴ System 1 and System 2 represent a framework, pioneered by Seymour Epstein and later popularized in 2011 by Nobel winner Prof. Daniel Kahneman,⁷⁵ for understanding humans’ dual systems of information processing. Under the label “dual process theory,” cognitive and consumer psychologists have been studying these two distinct cognitive systems underlying thinking for over thirty years. According to dual process theory, there are two different types of processes that contribute to decision-making: an intuitive process that provides a fast shortcut to decisions and behaviors (i.e., System 1, according to Kahneman’s language) and a reflective process for more careful deliberation before making a choice or engaging in a behavior (i.e., System 2).⁷⁶ Dual process models have been applied to the study of shopping behavior, either online or offline.⁷⁷ Studies on determinants of consumer

⁷³ Hoffman Opening Report, ¶ 291.

⁷⁴ Chetty Opening Report, ¶ 44 (“Dark patterns leverage cognitive and behavioral biases to limit users’ autonomy and impact their ability to decide what option to select. Each dark pattern impacts the choices and information presented to users and adds a layer of difficulty to their ability to decide what to do. **Users typically rely on cognitive and behavioral shortcuts (System 1 thinking) as opposed to engaging in rational decision making (System 2 thinking[]), in their online [i]nteractions.**”) (emphasis added).

⁷⁵ Epstein, S. (1994), “Integration of the Cognitive and the Psychodynamic Unconscious,” *American Psychologist*, 49, 8, 709–724; Kahneman, D. (2011), *Thinking, Fast and Slow*, New York, NY: Farrar, Straus and Giroux. The terms “System 1” and “System 2” were coined by Stanovich and West in their article published in 2000 but later popularized by Kahneman. See Stanovich, K. E. and R. F. West (2000), “Individual Differences in Reasoning: Implications for the Rationality Debate?” *Behavioral and Brain Sciences*, 23, 5, 645–726.

⁷⁶ See, e.g., Kahneman, D. (2003), “A Perspective on Judgment and Choice: Mapping Bounded Rationality,” *American Psychologist*, 58, 9, 697–720, p. 698 (“The operations of System 1 are typically fast, automatic, effortless, associative, implicit (not available to introspection), and often emotionally charged; they are also governed by habit and are therefore difficult to control or modify. The operations of System 2 are slower, serial, effortful, more likely to be consciously monitored and deliberately controlled; they are also relatively flexible and potentially rule governed.”); Chaiken, S. and Y. Trope (1999), *Dual-Process Theories in Social Psychology*, Guilford Press, p. 42 (“The [Elaboration Likelihood Model] is a dual-route but multiprocess theory ... The dual routes—‘central’ and ‘peripheral’—refer to attitude changes that are based on different degrees of elaborative information-processing activity. Central-route attitude changes are those that are based on relatively extensive and effortful information-processing activity... Peripheral-route attitude changes are based on a variety of attitude change processes that typically require less cognitive effort.”).

⁷⁷ See, e.g., Strack, F. et al. (2006), “Reflective and Impulsive Determinants of Consumer Behavior,” *Journal of Consumer Psychology*, 16, 3, 205–216 (“Strack et al. (2006)”), p. 205 (“This article describes a dual-system model of consumer behavior. This model is based on the assumption that all human behaviors are a joint function of reflective and impulsive mechanisms. Those mechanisms have different principles of operation but contribute to the

behavior discuss the role of both “reflective” (i.e., System 2) and “impulsive” (i.e., System 1) mechanisms in shopping decisions.⁷⁸ In my own research on the relevance of the dual process framework to online consumer behavior, I show that online consumers engage in both “rational” (i.e., System 2) and “experiential” (i.e., System 1) activities during their online navigation.⁷⁹

33. When performing her “cognitive walkthrough” on the UPDP page, Prof. Chetty claims that “[b]ecause the UPDP is not clearly related to the consumer’s primary task of placing an order on Amazon, consumers are very likely to rely on quick System 1 thinking and not carefully read [the UPDP] page, especially the terms and conditions, in order to move onto the next step in placing their order.”⁸⁰ However, Prof. Chetty provides no empirical evidence that Amazon consumers rely on System 1 thinking as they engage with the UPDP page. Additionally, the articles she cites to support her claims are either irrelevant or offer no support. This is because the papers she cites either discuss user choices in contexts other than product purchase, or they have no connection to dual process models, let alone System 1 thinking.⁸¹ Some of these studies stand out for their lack of relevance. For example, Prof. Chetty cites an article about data privacy

act of buying.”); Petty, R. E. and J. T. Cacioppo (1986), *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*, New York, NY: Springer-Verlag, p. 187 (“Recall that [in the Elaboration Likelihood Model,] under high relevance, attitudes were affected primarily by the issue-relevant arguments presented for the product, but under low relevance attitudes were affected more by peripheral source cues [In one study] we exposed subjects to mock magazine advertisements for a disposable razor under conditions of either high or low personal relevance ... Importantly, in addition to assessing product attitudes in this study, we also asked subjects to rate how likely they were to purchase the product (behavioral intentions).”).

⁷⁸ See, e.g., Strack et al. (2006), p. 207 (“[T]he strict distinction between behaviors that are reflectively and impulsively determined must be questioned. For example, even if a purchase decision is driven by impulsive mechanisms, the buyer must go to the cash register and engage in some transaction of money. There is little reason to assume that these components of buying are also driven by pure impulse ... Thus, it seems that most behaviors are the result of both reflective and impulsive determinants.”); Hoffman, W. et al. (2009), “Impulse and Self-Control From a Dual-Systems Perspective,” *Perspectives on Psychological Science*, 4, 2, 162–176, p. 162 (“[W]e outline a dual-systems perspective of impulse and self-control and suggest a framework for the prediction of self-control outcomes.”).

⁷⁹ Novak, T. P. and D. L. Hoffman (2009), “The Fit of Thinking Style and Situation: New Measures of Situation-Specific Experiential and Rational Cognition,” *Journal of Consumer Research*, 35, 1, 56–72, p. 68 (“As consumers think both rationally and experientially in the consumer activities they engage in, we expect our scales to have applicability to a wide range of consumer behaviors, including hedonic and utilitarian choice...”).

⁸⁰ Chetty Opening Report, ¶ 117.

⁸¹ Chetty Opening Report, ¶¶ 40–44, 117, 181. I am aware that Prof. Chetty cites an article by Kitkowska and coauthors about consumer awareness of terms and conditions during the purchase process, but even this article does not provide support for Prof. Chetty’s opinion around System 1 thinking, because the article does not discuss the role of System 1 thinking. See Kitkowska, A. et al. (2022), “Online Terms and Conditions: Improving User Engagement, Awareness, and Satisfaction through UI Design,” *CHI Conference on Human Factors in Computing Systems*, 624, 1–22.

(i.e., a context different from product purchase) that does not discuss System 1 and System 2 thinking, to support her claim that “[u]sers typically rely on cognitive and behavioral shortcuts (System 1 thinking) as opposed to engaging in rational decisional making (System 2 thinking[]), in their online Interactions.”⁸²

34. Prof. Chetty’s characterization of System 1 and System 2 thinking is also overly simplistic and inconsistent with insights from decades of research in consumer psychology and cognitive science. For example, research on consumer impulsiveness shows that impulse buying (which is typically associated with System 1 thinking) depends on “personal and contextual circumstances” that include available information and feelings,⁸³ and whether impulsive buying is perceived as appropriate for a specific shopping context.⁸⁴ Academic research finds that consumers can adopt either or both System 1 and System 2 thinking while engaged in the purchase process, including while online shopping.⁸⁵ Which system tends to be predominantly involved during any particular shopping process depends on multiple factors, including the consumer, the consumer’s goals in the specific shopping session, the items involved, and other

⁸² Chetty Opening Report, ¶ 44; Waldman, A. E., (2020), “Cognitive Biases, Dark Patterns, and the ‘Privacy Paradox,’” *Current Opinion in Psychology*, 31, 105–109.

⁸³ Strack et al. (2006), p. 205 (“[T]he relative contribution of impulsive and reflective processes depends on personal and contextual circumstances.”), p. 210 (“How can reflective decisions be influenced by impulsive processes? The RIM [i.e., Reflective-Impulsive Model] describes several ways in which such an influence can be exerted. The most important is the accessibility of elements in the impulsive system ... The impulsive system influences reflection not only through the varying accessibility of concepts but also through feelings.”).

⁸⁴ Rook, D. W. and R. J. Fisher (1995), “Normative Influences on Impulsive Buying Behavior,” *Journal of Consumer Research*, 22, 3, 305–313, p. 311 (“The results from the two studies reported here provide some insights into the social psychology that underlies the trait and behavioral aspects of impulsive buying behavior. Although, as expected, we observed a general tendency for impulsive buyers to make more impulsive purchases, we found that normative evaluations [i.e., judgments about the appropriateness of engaging in impulse buying behavior] moderate the relationship between this trait and subsequent buying behavior.”).

⁸⁵ Strack et al. (2006), p. 205 (“This article describes a dual-system model of consumer behavior. This model is based on the assumption that all human behaviors are a joint function of reflective and impulsive mechanisms. Those mechanisms have different principles of operation but contribute to the act of buying.”); Hoffman, W. et al. (2009), “Impulse and Self-Control From a Dual-Systems Perspective,” *Perspectives on Psychological Science*, 4, 2, 162–176, p. 162 (“[W]e outline a dual-systems perspective of impulse and self-control and suggest a framework for the prediction of self-control outcomes.”); Sloman, S. A. (1996), “The Empirical Case for Two Systems of Reasoning,” *Psychological Bulletin*, 119, 1, 3–22, p. 3 (“The systems serve complementary functions and can simultaneously generate different solutions to a reasoning problem. The rule-based system can suppress the associative system but not completely inhibit it. The article reviews evidence in favor of the distinction and its characterization.”).

factors involving demands of the task and situational characteristics.⁸⁶ For example, according to the academic literature, a consumer might be more likely to adopt impulsive thinking (i.e., System 1) and use shortcuts when they make their purchase decisions if the purchased product has little importance or is based on habitual purchase (e.g., purchasing the same brand of toothpaste on repeated occasions), among other factors.⁸⁷ The same consumer might be more likely to adopt System 2 thinking (e.g., comparing different brands and models, technical specifications, and/or price) when purchasing a new laptop, or when buying products in unfamiliar categories, or when selecting a new brand from a familiar product category. As I show in my research, online consumers' motivations also affect which thinking system consumers may engage in, with a "goal-directed" motivation such as purchasing a product associated with a higher chance of rational (i.e., System 2) thinking,⁸⁸ contrary to Prof. Chetty's claims. Similarly, in another study I conducted on online experience, I showed that both goal-directed activities (e.g., planned purchases, more closely aligned with System 2 thinking) and experiential activities (e.g., impulse purchases, more akin to System 1 thinking) are involved in

⁸⁶ See, e.g., Strack et al. (2006), p. 205 ("[T]he relative contribution of impulsive and reflective processes depends on personal and contextual circumstances."); Rook, D. W. and R. J. Fisher (1995), "Normative Influences on Impulsive Buying Behavior," *Journal of Consumer Research*, 22, 3, 305–313, p. 311 ("The results from the two studies reported here provide some insights into the social psychology that underlies the trait and behavioral aspects of impulsive buying behavior ... we found that normative evaluations moderate the relationship between this trait and subsequent buying behavior.").

⁸⁷ Researchers analyze the role of habits as repeated purchases that are facilitated because consumers have made the purchase in the past and are familiar with where they can find the desired product. See, e.g., Strack et al. (2006), p. 212 ("[T]he amount of reflection depends on the importance of the target. For example, the purchase of a new house will induce people to think more thoroughly about its utility than the purchase of a new toothpaste ... impulsive elements should be strengthened if buying is based on habits ... In a narrow sense, the more often a motor schema is triggered at the exposure to a certain stimulus, the more likely is its elicitation in the future. This mechanism may impulsively contribute to buying behavior by simply causing people to reach out for certain products.").

⁸⁸ Novak, T. P. and D. L. Hoffman (2009), "The Fit of Thinking Style and Situation: New Measures of Situation-Specific Experiential and Rational Cognition," *Journal of Consumer Research*, 35, 1, 56–72, pp. 64–65 ("In study 4, to demonstrate applicability of SSTS [i.e., Situation-Specific Thinking Style] scales to consumer activities that are not performance tasks, we consider four consumer Web activities that are either experiential (fun) or rational (goal directed) in nature ... and examine the fit of the activity with thinking style in predicting attitudinal outcome measures rather than performance measures ... People hold a more favorable attitude toward an activity when their thinking style fits the activity. Rational SSTS has a significant positive correlation with attitude for both rational consumer activities, and experiential SSTS has a significant positive correlation with attitude toward both experiential exploratory consumer activities."), p. 67 ("...the four Web activities in study 4 suggest applicability to goal-directed and experiential consumer behaviors.").

online consumer experience.⁸⁹ The same study also shows that the relationship between these two processes depends on various factors, including the consumers' skills and the specific nature of the online task.⁹⁰

35. Prof. Chetty also invokes consumers' presumed reliance on System 1 thinking as a basis for her opinions on the information on Prime's terms on the UPDP page. While Prof. Chetty acknowledges that "[t]he disclosures about the price and recurring nature of a Prime subscription and the fact that a user is being asked to enroll in a Prime subscription" are on the UPDP page, she claims that these disclosures "are easily missed" because of "consumer's reliance on System 1 thinking" and because this information is presented in small font at the bottom of the page, "buried within other terms and conditions," which consumers "frequently do not read".⁹¹ Prof. Chetty provides no evidence that Amazon users who saw the UPDP page relied on System 1 thinking. Indeed, as discussed in the Hoffman Opening Report, the information regarding the price of the Prime membership, that the offer will auto-renew, and that the consumer can cancel at any time by visiting their account and changing their membership settings are presented in bold font on the UPDP page.⁹² Moreover, as discussed above, Prof. Chetty's assumption that consumers relied on System 1 thinking in their Amazon checkout processes ignores the contextual and situational factors identified in the literature that moderate which system a consumer may rely on. In fact, contrary to Prof. Chetty's claims, consumers may be just as likely

⁸⁹ Novak, T. P. and D. L. Hoffman (2003), "The Influence of Goal-Directed and Experiential Activities on Online Flow Experiences," *Journal of Consumer Psychology*, 13, 1–2, 3–16, p. 4 ("Clearly, consumer researchers have demonstrated the value in considering both goal-directed as well as experiential behavior when evaluating consumer experience in traditional, offline settings. More recently, researchers have begun to turn their attention to an investigation of these behaviors in online environments..."), p. 13 ("[F]low occurs during both goal-directed as well as experiential types of activities. Viewed in the context of dual-process models of consumer information processing, that specify experiential/associative and rational/rule-based processing modes ... this suggests that one important future research area is specifying and testing conceptual frameworks that differentiate experiential and task-oriented flow.").

⁹⁰ Novak, T. P. and D. L. Hoffman (2003), "The Influence of Goal-Directed and Experiential Activities on Online Flow Experiences," *Journal of Consumer Psychology*, 13, 1–2, 3–16, p. 13 ("The relative importance of antecedents of flow such as skill, challenge, involvement, focused attention, and telepresence may well differ across rational versus experiential processing modes.").

⁹¹ Chetty Opening Report, ¶ 119. *See also* Chetty Opening Report, ¶ 120 ("In some versions of the UPDP, the only location where Amazon discloses the cost and the renewal terms of a Prime subscription is at the bottom of the page in the terms and conditions section, which consumers are known to miss or not read.").

⁹² Hoffman Opening Report, ¶¶ 101, 125.

to be engaged and alert (i.e., relying on System 2 thinking) navigating through the Amazon checkout process as when they are making a purchase.

36. Prof. Chetty takes these claims one step further, and asserts that the UPDP page for a mobile device is “even more manipulative” because “users need to scroll down the page, past all of the information regarding Prime benefits, to see Prime’s terms and conditions, where Prime’s cost and renewal terms generally are buried.”⁹³ She then concludes that, as with the desktop UPDP page, this information is “easily missed” for mobile version of the UPDP page.⁹⁴ Once again, Prof. Chetty’s conclusion simply relies on her own say-so. Moreover, as discussed in the Hoffman Opening Report, too much information presented on a single page, especially on the smaller screens of mobile devices (such as a smartphone) might be difficult for consumers to process, and consumers can benefit from a gradual introduction of information.⁹⁵ Such interface designs are consistent with the principles of progressive disclosure, a well-known approach to user-interface design that attempts to achieve a balance between simplicity (an easy-to-use interface) and power (the presentation of important content or features that satisfy consumers’ needs).⁹⁶ Additionally, Prof. Chetty ignores that consumers are familiar with scrolling when using mobile devices as shown by research on consumer experience discussed in the Hoffman Opening Report.⁹⁷

37. Prof. Chetty further claims that the repetition of the word “free” and its presentation in “all-caps letters, bold font” are a “manipulative technique, known as visual prominence or visual manipulation—an Interface Interference dark pattern.”⁹⁸ She further claims that the repetition of this word “creates a cognitive dissonance, for the consumer who may subconsciously assume, as a result of this manipulation technique, that they will not be charged for the shipping and may

⁹³ Chetty Opening Report, ¶ 128.

⁹⁴ Chetty Opening Report, ¶ 128.

⁹⁵ Hoffman Opening Report, ¶ 259.

⁹⁶ Hoffman Opening Report, ¶¶ 199, 259; “Progressive Disclosure,” *Nielsen Norman Group*, December 3, 2006, www.nngroup.com/articles/progressive-disclosure/.

⁹⁷ Hoffman Opening Report, ¶ 259; Kim, J. et al. (2016), “Pagination versus Scrolling in Mobile Web Search,” *Proceedings of the 25th ACM International on Conference on Information and Knowledge Management*, 751–760, p. 752 (“Although people are familiar with turning the pages of a book horizontally, and swiping horizontally between screens in weather apps for example, they are used to scrolling with a vertical control type on touch-enabled devices, as this is the only mechanism provided by search engines.”).

⁹⁸ Chetty Opening Report, ¶ 121.

miss the cost of the subscription.”⁹⁹ However, while Prof. Chetty speculates that “the consumer...*may* subconsciously assume...that they will not be charged for the shipping and *may* miss the cost of the subscription,” she provides no evidence that any Amazon consumer who saw the UPDP page did make such assumptions.¹⁰⁰ She provides no empirical or other form of evidence to support her claim that the frequency of the words or the characteristics of the font used to present the benefits of the Amazon Prime subscription are “manipulative,” nor that they create “cognitive dissonance” amongst consumers. Additionally, Prof. Chetty overlooks the fact that many Amazon consumers would be familiar with Amazon’s promotion of free shipping benefits of Prime (an actual benefit that Prime provides to members), because these benefits are also highlighted in Prime advertising on other parts of the Amazon website.¹⁰¹

38. Importantly, Prof. Chetty ignores the fact that repetition is a fundamental concept in marketing. As discussed in the Hoffman Opening Report, seminal studies on advertising repetition that date back to the 1960s study the importance of advertising for consumer learning and recalls, and show the importance of repetition to increase persuasiveness of advertising messages and create a lasting impression on consumers.¹⁰² Consumers are also familiar with the marketing practice of repetition as many of the most popular paid digital membership/subscription programs online use repetition on their websites. As illustrated in my comparative analysis in the Hoffman Opening Report, I found that among the 48 popular paid digital membership/subscription programs I reviewed, 44 programs (92%) repeated membership/subscription benefits two or more times on a given webpage of the enrollment process, and 44 programs (92%) repeated membership/subscription benefits across multiple webpages of the enrollment process.¹⁰³

⁹⁹ Chetty Opening Report, ¶ 121.

¹⁰⁰ Chetty Opening Report, ¶ 121 (emphasis added).

¹⁰¹ Hoffman Opening Report, ¶ 103, Exhibit 7.

¹⁰² Hoffman Opening Report, ¶ 103; Krugman, H. E. (1965), “The Impact of Television Advertising: Learning Without Involvement,” *Public Opinion Quarterly*, 29, 3, 349–356; Krugman, H. E. (1971), “Brain Wave Measures of Media Involvement,” *Journal of Advertising Research*, 11, 1, 3–9; Campbell, M. C. and K. L. Keller (2003), “Brand Familiarity and Advertising Repetition Effects,” *Journal of Consumer Research*, 30, 2, 292–304; Schmidt, S. and M. Eisend (2015), “Advertising Repetition: A Meta-Analysis on Effective Frequency in Advertising,” *Journal of Advertising*, 44, 4, 415–428.

¹⁰³ Hoffman Opening Report, ¶ 282, Exhibit 54.

39. Furthermore, Prof. Chetty claims that “[t]he wording of the decline option elicits negative feelings from consumers...which could lead users to click on the enroll option to avoid feeling shame and the sense that they are not being financially sensible and potentially losing money on shipping.”¹⁰⁴ Prof. Chetty does not provide any support that the wording of the decline option would elicit the types of feelings she claims it would evoke or that any such feelings impacted Amazon consumers’ decision-making regarding enrolling in Prime when they were exposed to the UPDP page. Prof. Chetty did not use any tools that have been developed by researchers to classify text into lexical categories that evoke specific emotional responses, to demonstrate that the wording of the decline option would evoke feelings of “shame” or feelings of “not being financially sensible” as she claims, or even to demonstrate that the wording of the decline option would evoke any emotion that is different from any other text on the UPDP page or the rest of the Amazon website. Contrary to Prof. Chetty’s flawed approach, in the Hoffman Opening Report, I applied one such tool, Stanford University’s Empath, on Amazon’s decline option on the UPDP page and found that Amazon’s message of “No thanks, I do not want fast, free delivery” did not contain any words that appear in Empath’s list of “emotive” keywords (both for positive and negative emotions).¹⁰⁵ Further, to the extent the decline option does actually evoke emotions, as discussed in the Hoffman Opening Report, the use of emotions is ubiquitous in standard marketing practices.¹⁰⁶

40. Prof. Chetty also claims that “[t]he visual asymmetry between the [enroll and decline] options creates an imbalance that favors the enroll option. Users are therefore naturally more drawn to the visuals of the enroll option than to those of the decline option.”¹⁰⁷ Once again, Prof. Chetty provides no evidence that, when exposed to the UPDP page, Amazon consumers favored

¹⁰⁴ Chetty Opening Report, ¶ 122. Generally, Prof. Chetty claims that this UI design element contains “confirmshaming.” See Chetty Opening Report, ¶¶ 55.(v).a, 191.

¹⁰⁵ Hoffman Opening Report, ¶ 119. See, e.g., Fast, E. et al. (2016), “Empath: Understanding Topic Signals in Large-Scale Text,” *CHI Conference on Human Factors in Computing Systems*, p. 1 (“Empath draws connotations between words and phrases by deep learning a neural embedding across more than 1.8 billion words of modern fiction ... We show that Empath’s data-driven, human validated categories are highly correlated ($r=0.906$) with similar categories in LIWC.”).

¹⁰⁶ Hoffman Opening Report, ¶ 118. Bagozzi, R. P. et al. (1999), “The Role of Emotions in Marketing,” *Journal of the Academy of Marketing Science*, 27, 2, 184–206, p. 202 (“Emotions are ubiquitous throughout marketing. They influence information processing, mediate responses to persuasive appeals, measure the effects of marketing stimuli, initiate goal setting, enact goal-directed behaviors, and serve as ends and measures of consumer welfare.”).

¹⁰⁷ Chetty Opening Report, ¶ 123.

the enroll option over the decline option because of the visual differences between these options (as opposed to say, their decision to enroll or not), nor has Prof. Chetty presented evidence that customers were prevented from understanding the enrollment option even if they were “drawn” to it. Prof. Chetty ignores that many consumers, including Amazon consumers, would likely be familiar with UI designs that she describes as containing visual asymmetry and imbalances. For example, many Amazon consumers would likely be familiar with visual differences between different call-to-action features (e.g., use of the color yellow versus the color blue, use of buttons versus links), as such differences are consistently applied to various call-to-action features throughout the Amazon website, including call-to-action features that are unrelated to Prime.¹⁰⁸ As discussed in the Hoffman Opening Report, such UI design elements that are consistently applied throughout the Amazon website help increase consumers’ familiarity with, and help ease consumers’ navigation of, the Amazon website.¹⁰⁹ In addition, consumers are likely to be familiar with the use of differences in color and/or size between call-to-action features to accept and decline offers for paid digital membership/subscription programs through their experiences on other websites. For example, in my comparative analysis in the Hoffman Opening Report, I found that among the popular paid digital membership/subscription programs I reviewed that had call-to-action features for both accepting and declining the offer for the program on the same webpage within the enrollment process,¹¹⁰ most (82%) had call-to-action features for declining the offer that differed in color and/or size from the call-to-action feature for accepting the offer.¹¹¹ Similarly, in my review of the most frequently visited government websites, I found that among the government websites that used overlays and included both accept and decline call-to-

¹⁰⁸ Hoffman Opening Report, ¶ 111, Exhibit 11.

¹⁰⁹ Hoffman Opening Report, ¶¶ 110–112.

¹¹⁰ Of the 48 programs I examined, 11 had call-to-action features for both accepting and declining the offer on the same webpage within the enrollment process. Of these 11 websites, 9 had call-to-action features for declining the offer that differed in color and/or size from the call-to-action feature for accepting the offer. Hoffman Opening Report, ¶ 284, Exhibit 55.

¹¹¹ Hoffman Opening Report, ¶ 284. The comparative analysis in the Hoffman Opening Report does not count as decline options instances in which the only way to decline is to exit the overlay by clicking “X” at the top corner of the overlay (e.g., Microsoft 365, Accept 2nd Offer, 01 Upgrade Pop-Up 01, USA Today, Accept 2nd Offer, 02 Offer USA Today 1, Xbox Game Pass, Accept 1st Offer, 03 Offer 01) when evaluating whether the call-to-action feature to decline the offer for the paid digital membership/subscription program differs in color and/or size from the call-to-action feature to accept the offer on the same webpage. See Hoffman Opening Report, Appendix E.

action features on the overlay,¹¹² nearly all of them (92%), including the website of the Federal Trade Commission itself, “contained call-to-action features for accepting and declining the proposed action on the overlay that differed in color and/or size.”¹¹³

41. Prof. Chetty further claims that “Amazon’s use of a yellow/orange button located on the right of the screen for the enroll option is *particularly* manipulative given the significance of those visual choices within the context of its online checkout flow. The button that gets users to the next stage of their shopping experience is always a yellow button, often located on the right of the screen.”¹¹⁴ Once again, Prof. Chetty fails to provide any evidence that any Amazon consumers were actually “manipulated” due to Amazon’s use of a “yellow/orange button located on the right of the screen” for the option to accept. Prof. Chetty also ignores that websites of popular paid digital membership/subscription programs use consistent color schemes for call-to-action features, including call-to-action features that enroll consumers in the paid digital membership/subscription program, suggesting that many consumers would be familiar with these UI design elements (or those similar to them). In my comparative analysis in the Hoffman Opening Report, I found that among the 48 popular paid digital membership/subscription programs I reviewed, 42 programs (88%) used a call-to-action feature to complete enrollment in the paid digital membership/subscription program or a free trial of the program that was the same color as prior call-to-action features in their desktop enrollment flows.¹¹⁵

42. Prof. Chetty also states that the “fact that the consumer must either accept or decline the Prime subscription (often disguised as ‘fast, free shipping’) to continue their shopping experience...is, in essence, a Forced Action dark pattern.”¹¹⁶ However, Prof. Chetty does not provide any evidence that Amazon consumers who were exposed to the UPDP page were “swayed by the manipulative elements on the page and miss the cost and recurring charges

¹¹² Among the 31 popular government websites I reviewed, 17 websites used overlays, among which 12 government websites included both accept and decline call-to-action features on the overlay. Of these 12 websites, 11 had call-to-action features for accepting and declining the proposed action on the overlay that differed in color and/or size. There are 5 government websites with overlays but no decline call-to-action feature on the overlay (i.e., MedlinePlus, National Park Service, Medicare.gov, Healthcare.gov, Bureau of Labor Statistics). Consumers need to click “X” at the top corner of the overlay to exit the overlay. Hoffman Opening Report, ¶ 311, Exhibit 88, Appendix F.

¹¹³ Hoffman Opening Report, ¶¶ 315–316, Exhibit 88, Exhibit 92.

¹¹⁴ Chetty Opening Report, ¶ 125 (emphasis in original).

¹¹⁵ Hoffman Opening Report, ¶ 290, Exhibit 55.

¹¹⁶ Chetty Opening Report, ¶ 126.

disclosures and click on the button to enroll in Prime without realizing what the outcome of that action is.”¹¹⁷ As discussed in the Hoffman Opening Report, the definition of “forced action” is broad and descriptive, which makes determining whether a business practice falls within the realm of legitimate marketing efforts versus the alleged “forced action dark patterns” an intractable, subjective exercise.¹¹⁸ As discussed earlier in this report section and in the Hoffman Opening Report, the UPDP page is an example of a cross-sell, a legitimate marketing technique that is commonly used.¹¹⁹ In fact, I found that of the 16 companies that sell products or services other than the paid digital memberships/subscription programs (i.e., “Category 1” companies) in my comparative analysis, all of them offered a paid digital membership/subscription program or a free trial of the program as a cross-sell during the online checkout process.¹²⁰

43. Finally, Prof. Chetty opines that “[t]he design of the UPDP for a mobile device is even more manipulative than the desktop version” because users “need to scroll down the page” to see “buried” information on Prime’s price and auto-renewal information and that this information could be “easily missed.”¹²¹ Prof. Chetty also claims that the “prominently featured” “double stacked yellow/orange button” for accepting free trial of Prime on top of the “blue hyperlink” for declining “makes it harder for the user to find the decline option,” and “[t]he word ‘free’ is...more emphasized.”¹²² While Prof. Chetty provides no evidence that any Amazon consumers were affected by these UI design elements on the mobile UPDP page and enrolled in Prime when they did not intend to, her claims ignore consumers’ likely familiarity with these types of UI design elements (or those similar to them) based on prior experiences and knowledge. Importantly, Prof. Chetty does not consider that these UI elements are consistent with principles of progressive disclosure and standard marketing practices, as discussed previously. I discussed in the Hoffman Opening Report, it is common and consistent with standard practices for mobile devices to present information on pages that are longer than the size of a mobile screen to require

¹¹⁷ Chetty Opening Report, ¶ 126.

¹¹⁸ Hoffman Opening Report, ¶ 91.

¹¹⁹ See ¶ 31 above. See also Hoffman Opening Report, ¶¶ 92–94, Exhibit 5.

¹²⁰ See ¶ 31 above. See also Hoffman Opening Report, ¶ 291.

¹²¹ Chetty Opening Report, ¶ 128.

¹²² Chetty Opening Report, ¶¶ 128–130.

the user to scroll to navigate.¹²³ Specifically, user experience research shows that, in recent years, it has become increasingly common for user experience designers to create longer pages that might require scrolling.¹²⁴ Additionally, studies on online navigation and usability show that consumers spend a large amount of time reading online content that requires scrolling.¹²⁵

2. Prof. Chetty's Conclusions From the "Cognitive Walkthrough" of other Amazon Enrollment Pages Are Flawed and Unreliable

44. I explained in Section IV.A.1 above that Prof. Chetty's claims that certain UI design elements on the UPDP page contain "dark patterns" lack proper basis, do not consider standard marketing practices, are inconsistent with the basic tenets of online consumer behavior and experience, and ignore consumers' likely familiarity with the UI design elements at issue (or those similar to them). To the extent that Prof. Chetty asserts that similar UI design elements on other pages in Amazon's enrollment flows (i.e., SOSP, SOSP PDP,¹²⁶ SPC, and last page of the TrueSPC flow) contain the same alleged "dark patterns" as the UPDP page, my analyses and conclusions described in Section IV.A.1 are applicable and demonstrate that her claims are flawed and unreliable. In this section, I evaluate Prof. Chetty's claims regarding these other pages in Amazon's enrollment process, focusing on allegedly problematic UI design elements distinct from those on the UPDP page.

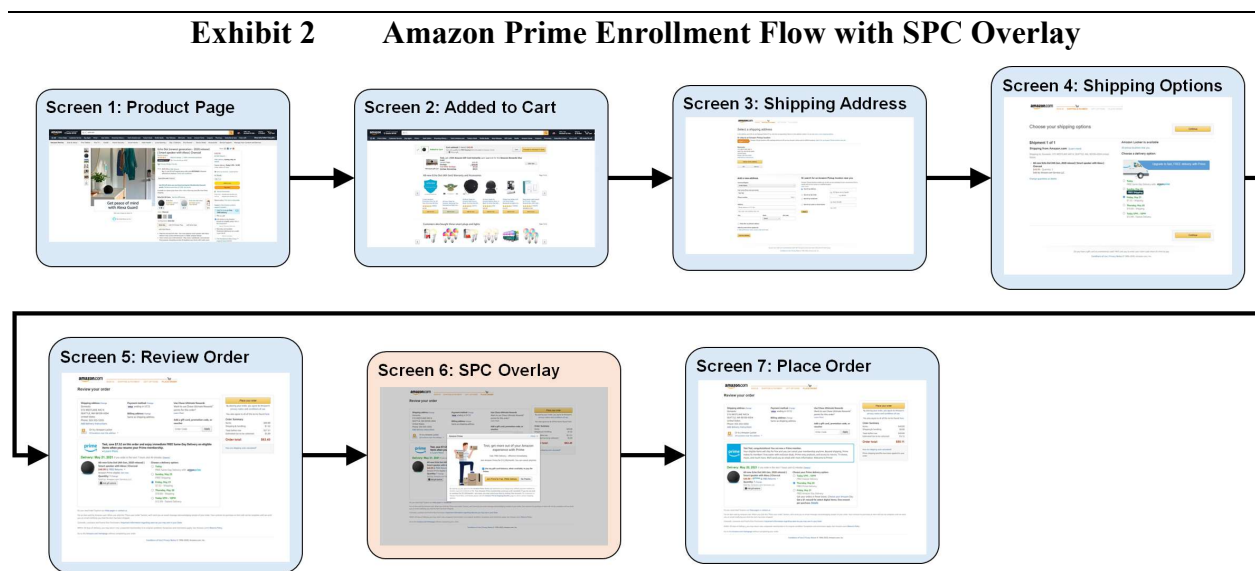
¹²³ Hoffman Opening Report, ¶ 254.

¹²⁴ Hoffman Opening Report, ¶ 254. "Scrolling and Attention," *Nielsen Norman Group*, April 15, 2018, <https://www.nngroup.com/articles/scrolling-and-attention/> ("But one user behavior that did change since the early days of the web is the tendency to scroll. In the beginning, users rarely scrolled vertically; but by 1997, as long pages became common, most people learned to scroll... Since 2010, with the advent of responsive design and minimalism, many designers have turned towards long pages (covering several 'screenfuls') with negative space. It's time to ask, again, whether user behavior has changed due to the popularity of these web-design trends... In 2010, 80% of the viewing time was spent above the fold. Today, that number is only 57% — likely a consequence of the pervasiveness of long pages. What does that mean? First, it could be that, overall, designers are doing a good job of creating signifiers to counteract the illusion of completeness and to invite people to scroll. In other words, they are aware of the disadvantages of the long page and mitigate them to some extent. Second, it could mean that users have become conditioned to scroll — the prevalence of pages requiring scrolling has ingrained that behavior in us.").

¹²⁵ Hoffman Opening Report, ¶ 255. "Scrolling and Attention," *Nielsen Norman Group*, April 15, 2018, <https://www.nngroup.com/articles/scrolling-and-attention/> ("In our most recent study, users spent about 57% of their page-viewing time above the fold. 74% of the viewing time was spent in the first two screenfuls...").

¹²⁶ I understand the SOSP PDP page is substantially identical to the UPDP page, which I discussed in Section IV.A.1 above.

45. Prof. Chetty claims that the Amazon enrollment flow with a SPC overlay, as shown in Exhibit 2, contains “nagging” because Amazon “ask[s] the same thing over and over again, wears the user down to take an action that benefits the service provider.”¹²⁷ Prof. Chetty provides no evidence that Amazon consumers who were exposed to the SPC flow were “[worn] down” by multiple Prime offers, and this claim suffers from the same shortcomings as Prof. Chetty’s claims on the UPDP page as discussed above. Prof. Chetty provides no evidence that this UI design element has any impact whatsoever on consumers’ behavior. Moreover, as discussed in the Hoffman Opening Report, repetition of the Prime offer is a standard marketing practice and one that consumers would likely be familiar with.¹²⁸ As I discussed in Section IV.A.1, Amazon’s repeated mentions of the free shipping benefits of Prime is consistent with its advertising of Prime benefits on other webpages on the Amazon website, as well as marketing practices used by other ecommerce websites. Prof. Chetty fails to explain why Amazon’s repetitions of the Prime offer, which is a legitimate advertising practice, is harmful rather than beneficial to consumers who may be interested in the Prime offer.



Source: Chetty Opening Report, MC10 Prime Signup CX, “Prime Signup CX,” pp. 21–27.

¹²⁷ Chetty Opening Report, ¶ 152.

¹²⁸ Hoffman Opening Report, ¶¶ 103, 178.

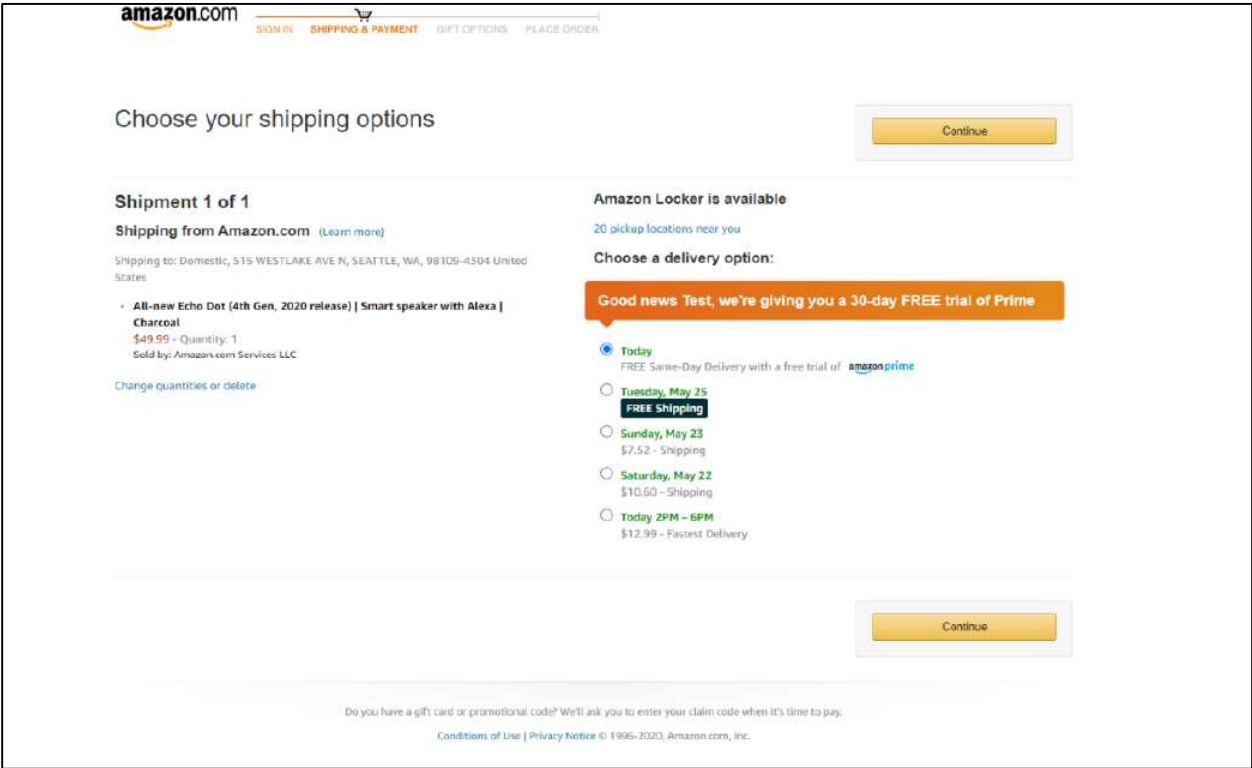
46. Prof. Chetty further claims that the “[t]he price and renewal terms are entirely absent from the SOSP,”¹²⁹ (SOSP page is reproduced in Exhibit 3), and similarly, “nowhere [on the SPC page] are the cost and renewal terms of Prime disclosed”¹³⁰ (SPC page is reproduced in Exhibit 4). However, Prof. Chetty’s approach in reaching these conclusions is flawed because she examines these pages and the information on these pages in isolation, which abstracts from the way consumers would experience these pages in the real world, i.e., as part of a process that is informed by the information and choices available on other pages in the process, as well as consumers’ prior experiences, goals, motivations, and likely familiarity with the at-issue UI design elements (or those similar to them). Specifically, Prof. Chetty ignores that the information on price and renewal terms is available to consumers within the enrollment flows by the point they make the decision to (or not to) enroll in a free trial of Prime.¹³¹ In other words, consumers cannot sign up for Prime without first seeing the terms of Prime.

¹²⁹ Chetty Opening Report, ¶¶ 101, 103.

¹³⁰ Chetty Opening Report, ¶ 144.

¹³¹ Chetty Opening Report, Attachment B, pp. 11, 26.

Exhibit 3 SOSP Page



Source: Chetty Opening Report, Attachment B, p. 9.

Exhibit 4 SPC Page

amazon.com SIGN IN SHIPPING & PAYMENT GIFT OPTIONS PLACE ORDER

Review your order

Shipping address [Change](#)
 Domestic
 515 WESTLAKE AVE N
 SEATTLE, WA 98109-4304
 United States
 Phone: 555-555-5555
[Add delivery instructions](#)

Payment method [Change](#)
 ending in 2871

Billing address [Change](#)
 Same as shipping address

Add a gift card, promotion code, or voucher
 Enter Code

Place your order
 By placing your order, you agree to Amazon's [privacy notice and conditions of use](#).
 You also agree to all of the terms found [here](#).

Order Summary

| | |
|--------------------------------|----------------|
| Items: | \$49.99 |
| Shipping & handling: | \$7.52 |
| Total before tax: | \$57.51 |
| Estimated tax to be collected: | \$5.89 |
| Order total: | \$63.40 |

[How are shipping costs calculated?](#)

FREE TRIAL
Test, we'd hate for you to miss out on unlimited fast, FREE delivery
 Save \$7.52 on eligible items in this order and enjoy unlimited fast, FREE delivery when you try Prime FREE for 30 days.

[Try Prime FREE for 30 days >](#)
 No hassle. No commitments. Cancel anytime.

Delivery: May 24, 2021 If you order in the next 14 hours and 32 minutes [\(Details\)](#)

All-new Echo Dot (4th Gen, 2020 release) | Smart speaker with Alexa | Charcoal
\$49.99 & FREE Returns [View larger image](#)
 Amazon Prime eligible [Join now](#)
 Sold by: Amazon.com Services LLC
[Add gift options](#)

Choose a delivery option:

- ☐ **Today**
 FREE Same-Day Delivery with your free trial of Prime
Fast, FREE Delivery
- ☐ **Wednesday, May 26**
 FREE Shipping
- ☒ **Monday, May 24**
 \$7.52 - Shipping
- ☐ **Sunday, May 23**
 \$10.60 - Shipping
- ☐ **Today 2PM - 6PM**
 \$12.99 - Fastest Delivery

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Source: Chetty Opening Report, Attachment B, p. 25.

47. Prof. Chetty also claims that “the word ‘FREE’ is emphasized [on SOSP for Prime free trial] and a user may focus on that word and assume there are no costs associated with this deal at the present or at a future time”¹³² (SOSP page is reproduced in Exhibit 3). Similarly, Prof. Chetty claims that Amazon’s display of “\$0.00” as the price of the free trial of Amazon Prime on SPC page is “likely misleading consumers into thinking Prime is not going to cost them anything”¹³³ (SPC page is reproduced in Exhibit 5). Prof. Chetty provides no evidence that Amazon users who saw this information “assume[d] there [were] no costs associated with [Prime

¹³² Chetty Opening Report, ¶ 102.

¹³³ Chetty Opening Report, ¶ 146.

membership] at the present or at a future time” or was “mis[ed] into thinking Prime is not going to cost them anything.” Prof. Chetty overlooks that, in both of these flows, the price and auto-renewal information of the free trial of Prime are clearly stated. Specifically, after the SOSP page Prof. Chetty claims includes the “misleading” “FREE” term, consumers are shown a UPDP page with the message in bold, “After your FREE trial, Prime is just \$12.99/month.” See Exhibit 6. Similarly, on the SPC page in Exhibit 5, above the “\$0.00,” it is stated in bold that “After your free trial, Prime is just \$12.99/month.” Additionally, Prof. Chetty ignores that consumers are likely familiar with free trials that auto-renew. Specifically, I found that, of the 48 popular paid digital membership/subscription programs I reviewed, 23 programs offered a free trial and all 23 of these free trials automatically renewed (i.e., converted into a paid digital membership/subscription program) at the end of the trial period, if not canceled before then.¹³⁴ Similarly, as discussed in the Hoffman Opening Report, according to a survey of U.S. adults conducted by Prof. Ronald T. Wilcox in August 2024 (“Free Trials Survey”), 85% of U.S. adults who signed up for at least one free trial in the prior 12 months indicated that their most recent free trial did (or would, unless canceled) auto-renew.¹³⁵

¹³⁴ In the Hoffman Opening Report, as part of my comparative analysis, I developed a metric to evaluate whether the website offered a free trial that automatically renewed and charged applicable payment method if not canceled before the end of the trial period. I did not separately track the incidence of free trials (regardless of autorenewal). Therefore, based on the metric in the Hoffman Opening Report alone, I could not reach conclusions on the prevalence of automatically renewing free trials in situations where free trials were offered. In this report I expanded my analysis to make that determination. I identified, among the 48 popular paid digital membership/subscription programs, all programs that offered a free trial as a new additional metric. I then compared the result for this new metric to the result for the original metric in the Hoffman Opening Report (i.e., the metric that showed whether the company offered a free trial that automatically renewed and charged the applicable payment method if not canceled before the end of the trial period). I found that there were 23 companies that offered free trials, and all of these free trials automatically renewed at the end of the trial period. To evaluate whether a website offered a free trial, I applied the same general methodology as the one I applied for the comparative analysis in the Hoffman Opening Report. Independent coders were trained to review screenshots of the websites of 48 popular paid digital membership/subscription programs, following the coding instructions provided in **Appendix C**. At the end of the coding process, the overall level of agreement between the two coders’ assessment of whether the website offered a free trial was 97.9%. To account for the possibility of “chance” as the source of agreement between the two coders, I calculated a reliability coefficient, called Cohen’s *kappa*, that adjusts for this likelihood of chance as the source of agreement between coders. The Cohen’s *kappa* for the assessment of whether the website offered a free trial was 95.8%. According to academic literature, a Cohen’s *kappa* of 0.80 or greater suggests “[a]lmost [p]erfect” agreement. See Hoffman Opening Report, ¶ 278, Exhibit 54, Appendix D. See also **Appendix C**; **Appendix D**; **workpaper 1**.

¹³⁵ Expert Report of Ronald T. Wilcox, Ph. D., February 24, 2025 (“Wilcox Opening Report”), ¶ 64; Hoffman Opening Report, fn 234.

Exhibit 5 SPC Page

amazon.com

SIGN IN SHIPPING & PAYMENT GIFT OPTIONS PLACE ORDER


Review your order

Shipping address [Change](#)

See details below.

[Add delivery instructions](#)

Payment method [Change](#)

 ending in 2871

[Billing address \[Change\]\(#\)](#)

Same as shipping address

Add a gift card, promotion code, or voucher

Place your order

By placing your order, you agree to Amazon's [privacy notice and conditions of use](#).

You also agree to all of the terms found [here](#).

By placing your order, you agree to [Terms and Conditions](#), and authorize us to charge your default payment method or any other payment method on file. Your Amazon Prime membership continues until cancelled. If you do not wish to continue for \$12.99/month plus any applicable taxes after your first month, you may cancel anytime by visiting [Your Account](#). For customers in Hawaii, Puerto Rico, and Alaska please visit the [Amazon Prime Shipping Benefits](#) page to check various shipping options.


Order Summary

| | |
|--------------------------------|----------------|
| Items (2): | \$49.99 |
| Shipping & handling: | \$0.00 |
| Total before tax: | \$49.99 |
| Estimated tax to be collected* | \$5.12 |
| Order total: | \$55.11 |

How are shipping costs calculated?

A 30-day FREE trial of Amazon Prime has been added to your order. Your order has been upgraded to fast, FREE shipping.

After your free trial, Prime is just \$12.99/month. Cancel anytime.




Amazon Prime (30-Day Free Trial)

\$0.00

[View larger image](#)

[Delete](#)

Sold by: Amazon.com Services LLC

 Gift options not available.


Your Prime membership will be applied to peas-service+0-1621614338013WspB@email.amazon.com.

[Learn more](#)

Items shipped from Amazon.com

Shipping address: Domestic, 515 WESTLAKE AVE N, SEATTLE, WA, 98109-4304 United States [Change](#)

Delivery: May 23, 2021 If you order in the next 14 hours and 31 minutes: [Details](#)




All-new Echo Dot (4th Gen, 2020 release) | Smart speaker with Alexa | Charcoal

\$49.99 & FREE Returns

[View larger image](#)

Quantity: 1 [Change](#)

Sold by: Amazon.com Services LLC

 [Add a gift receipt](#) and see other gift options

Choose your Prime delivery option:

☐ Today 2PM - 6PM

FREE Fastest Delivery

☒ Sunday, May 23

FREE Prime Delivery

By placing your order, you agree to The Amazon Prime terms next to the order button at the top of this checkout page, including Amazon Prime's auto-renewal terms.

Do you need help? Explore our [Help pages](#) or [contact us](#)

For an item sold by Amazon.com: When you click the "Place your order" button, we'll send you an email message acknowledging receipt of your order. Your contract to purchase an item will not be complete until we send you an email notifying you that the item has been shipped.

California, Louisiana and Puerto Rico Purchasers: [Important information regarding sales tax you may owe in your State](#)

Within 30 days of delivery, you may return new, unopened merchandise in its original condition. Exceptions and restrictions apply. See Amazon.com's [Returns Policy](#)

Go to the [Amazon.com homepage](#) without completing your order.

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Source: Chetty Opening Report, Attachment B, p. 26.

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Exhibit 6 UPDP Page in the SOSP Flow

amazon.com

Test, we're giving you a 30-day FREE trial of Prime

After your FREE trial, Prime is just \$12.99/month

Your top Prime eligible item in cart:

Your Prime benefits include:

| Prime Benefits | |
|---|----------|
| Fast, FREE delivery on Prime eligible items | Included |
| Prime Music | Included |
| Prime Video | Included |

Enjoy FREE delivery, as fast as today on your Prime eligible items.

☒ Use my gift card balance, when available, to pay for Prime.

No Thanks

Start your Prime FREE trial

Don't worry, you can cancel anytime.

By signing up, you acknowledge that you have read and agree to the [Amazon Prime Terms and Conditions](#) and authorize us to charge your default payment method (MasterCard ****-2871) or another available payment method on file after your 30-day free trial. Your Amazon Prime membership continues until cancelled. If you do not wish to continue for \$12.99/month plus any applicable taxes, you may cancel anytime by visiting [Your Account](#) and adjusting your membership settings. For customers in Hawaii, Puerto Rico, and Alaska please visit the [Amazon Prime Shipping Benefits](#) page to check various shipping options.

Having difficulties? Please visit our [Help](#) page to learn more about placing an order.

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Source: Chetty Opening Report, Attachment B, p. 11.

48. Prof. Chetty claims that “[t]he ‘delete’ option [to remove free trial of Prime] on the SPC is ...easily missed by consumers,”¹³⁶ (SPC page is shown in Exhibit 5). Similarly, she claims the consumer needs “to change ‘Qty’ from ‘1’ to ‘0’ on the item ‘Amazon Prime (30-day Free Trial)’” to remove the free trial of Prime on the last page of TrueSPC flow, which “is likely to confuse a user”¹³⁷ (the last page of the TrueSPC flow is reproduced in Exhibit 7). Prof. Chetty provides no evidence that Amazon consumers who wanted to remove the Prime free trial missed the “delete” option on the SPC page or were confused by the need to change quantity from “1” to “0” on the last page of the TrueSPC flow.

¹³⁶ Chetty Opening Report, ¶ 149.

¹³⁷ Chetty Opening Report, ¶ 175.

Exhibit 7 Last Page of the TrueSPC Flow

amazon

Checkout (2 items)

1 Shipping address

DENVER, CO 80202-1559

Add delivery instructions

Change

2 Payment method

VISA Visa ending in

Billing address: Same as shipping address.

^ Add a gift card or promotion code or voucher

Enter code

Apply

Change

3 Offers

Change

4 Review items and shipping

A 30-day FREE trial of Amazon Prime has been added to your order. Your order has been upgraded to fast, FREE shipping.

After your free trial, Prime is just \$14.99/month. Cancel anytime.

Your Prime membership will begin when you place your order

Items shipped from Amazon.com

prime

Amazon Prime (30-Day Free Trial)

\$0.00

Qty: 1

Sold by: Amazon.com Services LLC

Gift options not available.

Your Prime membership will be applied to

Get a \$50 Amazon Gift Card instantly

upon approval for the Amazon Rewards Visa Card.

Learn more

Shipping address:

DENVER, CO, 80202-1559 United States

Change

Estimated delivery: Dec. 19, 2022

Items shipped from Amazon.com

The Ultimate Serial Killer Trivia Book: A Collection Of Fascinating Facts And Disturbing Details About Infamous Serial Killers And Their Horrific Crimes (Perfect True Crime Gift)

by Stevenson, Jack

\$14.90 & FREE Returns

Qty: 1

Sold by: Amazon.com Services LLC

Add a gift receipt

and see other gift options

Choose your Prime delivery option:

Monday, Dec. 19

FREE Prime Delivery

Order total: \$16.48

By placing your order, you agree to Amazon's privacy notice and conditions of use.

Place your order

By placing your order, you agree to Terms and Conditions, and authorize us to charge your default payment method or any other payment method on file. Your Amazon Prime membership continues until cancelled. If you do not wish to continue for \$14.99/month plus any applicable taxes after your first month, you may cancel anytime by visiting Your Account. For customers in Hawaii, Puerto Rico, and Alaska please visit the Amazon Prime Shipping Benefits page to check various shipping options.

By placing your order, you agree to The Amazon Prime terms next to the order button at the top of this checkout page, including Amazon Prime's auto-renewal terms.

Need help? Check our Help pages or contact us

For an item sold by Amazon.com: When you click the "Place your order" button, we'll send you an email message acknowledging receipt of your order. Your contract to purchase an item will not be complete until we send you an email notifying you that the item has been shipped.

Important information about sales tax you may owe in your state

You may return new, unopened merchandise in original condition within 30 days of delivery. Exceptions and restrictions apply. See Amazon.com's Returns Policy.

Need to add more items to your order? Continue shopping on the Amazon.com homepage.

Place your order

By placing your order, you agree to Amazon's privacy notice and conditions of use.

By placing your order, you agree to Terms and Conditions, and authorize us to charge your default payment method or any other payment method on file. Your Amazon Prime membership continues until cancelled. If you do not wish to continue for \$14.99/month plus any applicable taxes after your first month, you may cancel anytime by visiting Your Account. For customers in Hawaii, Puerto Rico, and Alaska please visit the Amazon Prime Shipping Benefits page to check various shipping options.

Order Summary

| | |
|--------------------------------|----------------|
| Items (2): | \$14.90 |
| Shipping & handling: | \$0.00 |
| Total before tax: | \$14.90 |
| Estimated tax to be collected* | \$1.51 |
| Estimated Regulatory Fee: | \$0.27 |
| Order total: | \$16.48 |

How are shipping costs calculated?

What is a Regulatory Fee?

Source: Chetty Opening Report, Attachment E, p. 9.

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49. Lastly, Prof. Chetty claims that the Amazon checkout process contains “Social Engineering”¹³⁸ without linking any specific UI design element to this “dark pattern” or properly defining what she means by “Social Engineering.”¹³⁹ Therefore, it is not possible to evaluate Prof. Chetty’s basis for this claim. To the extent Prof. Chetty argues that the Amazon checkout process contains “Social Engineering” because of “confirmshaming,”¹⁴⁰ I have explained above that Prof. Chetty’s claims that the UPDP page contains “confirmshaming” are unfounded and flawed. The same reasoning can apply to pages in other Amazon checkout flows for which Prof. Chetty claims contain “confirmshaming.”

B. Prof. Chetty’s Conclusions From the “Cognitive Walkthrough” of the Amazon Prime Cancellation Processes Are Flawed and Unreliable

50. In her “cognitive walkthrough,” Prof. Chetty examines individual pages of two separate sets of Amazon Prime cancellation flows—a cancellation flow before April 2023 (which Prof. Chetty refers to as “Iliad”), and a cancellation flow after April 2023 (which Prof. Chetty refers to as “Iliad 2.0”)—and concludes that “the designs of Prime cancellation are confusing to some consumers, who do not successfully cancel online as a result of dark patterns.”¹⁴¹ Prof. Chetty’s “cognitive walkthrough” of the Amazon cancellation processes suffers from the same limitations as her “cognitive walkthrough” of the Amazon enrollment processes. Specifically, Prof. Chetty’s claims lack a proper basis, do not consider standard marketing practices, are inconsistent with the basic tenets of online consumer behavior and experience, and ignore consumers’ likely

¹³⁸ Chetty Opening Report, ¶ 187.

¹³⁹ Prof. Chetty’s definition of “Social Engineering” is different than the definition provided in Gray’s Ontology. Prof. Chetty defines “Social Engineering” as a UI design feature that “presents options or information to a user such that the user is more likely to take specific action based on their individual or social cognitive biases based on their quick thinking, or System 1, skills.” Gray’s Ontology’s definition of “social engineering” does not mention System 1 thinking, but instead characterizes the “individual and/or social cognitive biases” as due to “a user’s desire to follow expected or imposed social norms.” Moreover, Prof. Chetty categorized “Social Engineering” as a “high-level” “dark pattern,” that includes only “Personalization” as a “meso-level” “dark pattern,” and only “confirmshaming” as a “low-level” “dark pattern” subsumed under “Personalization.” However, Gray and coauthors use “Social Engineering” as a catch-all term that can comprise a wide variety of activities in addition to “Personalization,” including “Scarcity or Popularity Claims,” “Social Proof,” and “Urgency.” See Gray et al. (2024), p. 19; Chetty Opening Report, ¶ 55.(v).

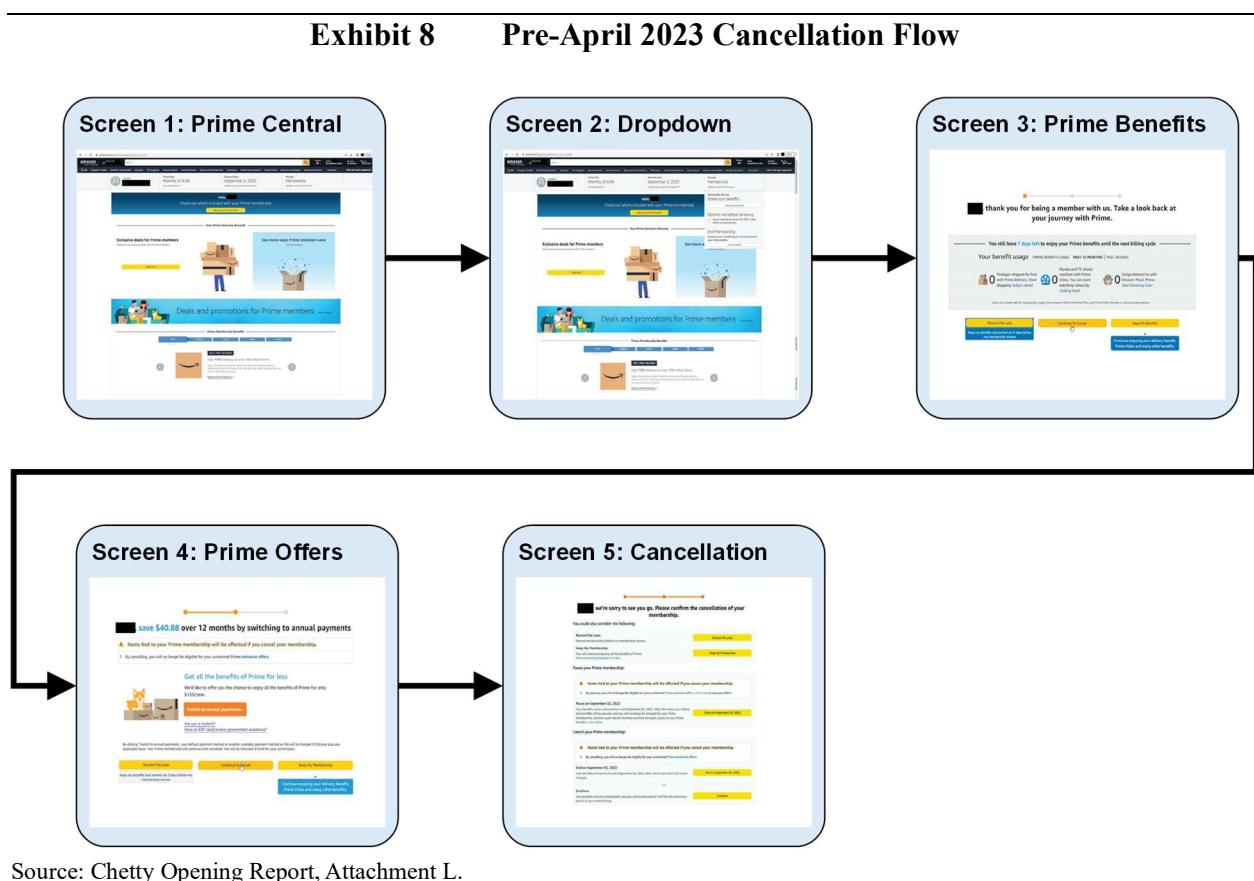
¹⁴⁰ Prof. Chetty defines “confirmshaming” as a UI design element that “shapes ‘accept’ and ‘decline’ options through emotional language or imagery to shame or guilt the user into selecting.” Chetty Opening Report, ¶ 55.(v).a.

¹⁴¹ Chetty Opening Report, p. 1.

familiarity with the UI design elements at issue in Amazon's cancellation processes (or those similar to them).

1. Prof. Chetty's Conclusions From the "Cognitive Walkthrough" of the Amazon Prime Cancellation Process Before April 2023 Are Flawed and Unreliable

51. In Exhibit 8 below I reproduce the Amazon cancellation flow before April 2023 ("Pre-April 2023 Cancellation Flow"), that Prof. Chetty discusses in her report.



52. In reference to the Pre-April 2023 Cancellation Flow, Prof. Chetty claims that Amazon uses "obstruction" because "the entry point into the cancellation flow from the Prime Central

page is visually not simple to locate”¹⁴² and “all users may not intuitively know that they need to click on ‘Manage membership’ to access the dropdown menu” (a menu that Prof. Chetty claims was “hidden”) in order to “move forward in the cancellation process.”¹⁴³ She also claims that it is unclear what the word “cancel” refers to.¹⁴⁴ Prof. Chetty fails to explain why she believes it is not intuitive for consumers to expect or know that the ingress to the cancellation flow is located under “Manage Membership,” where the call-to-action feature is clearly labeled as “Update, cancel and more” (the Prime Central page is reproduced in Exhibit 9). Importantly, even accepting Prof. Chetty’s claims and unsupported speculations at face value, she herself acknowledges that the entry point from Prime Central into the cancellation flow is one of the multiple ways consumers can access the flow.¹⁴⁵ I also described the various ways consumers can cancel a Prime membership in the Hoffman Opening Report.¹⁴⁶ As such, to the extent a consumer could not locate the entry point of the cancellation flow from the Prime Central page, they would have been able to use other options. This includes, as just one example, “typing ‘cancel membership’ in the search bar [on Amazon.com], which produces an ‘Alexa’ answer with a ‘End Your Amazon Prime Membership’ link” as Prof. Chetty acknowledges.¹⁴⁷

53. Prof. Chetty also claims that it is not simple to locate the entry point of the Amazon cancellation flow from the Prime Central page (the Prime Central page is reproduced in Exhibit

¹⁴² Chetty Opening Report, ¶ 211. The “Prime Central” webpage is the membership management page that contains information about the Prime benefits, plans, monthly or annual fee and their due date. The page contains links to update or cancel the membership, update the payment method and change the membership plan. *See* “Prime Central,” *Amazon*, <https://www.amazon.com/gp/primecentral>; Deposition of Benjamin Goeltz, October 30, 2024, p. 104:13–20 (“Prime Central is a page that Prime members can go to view information about their Prime membership and take actions against it, like switching plans or managing their Prime payment method or carrying on remind me later, canceling, pausing”). *See* Hoffman Opening Report, fn 332.

¹⁴³ Chetty Opening Report, ¶¶ 211–213.

¹⁴⁴ Chetty Opening Report, ¶ 211.

¹⁴⁵ Chetty Opening Report, ¶ 204. *See also* Chetty Opening Report, ¶¶ 205–207.

¹⁴⁶ Hoffman Opening Report, ¶ 36. I discussed 13 different ways a consumer can enter the Prime cancellation flow in the Hoffman Opening Report. For example, Prime consumers can enter the Prime cancellation flow by (i) visiting the Amazon landing page, hovering over the “Account & Lists” dropdown menu on the top right, and navigating and clicking on “Account,” then “Prime,” followed by “Update, cancel and more,” and then click on “End membership;” (ii) clicking on the “All” with three bars on the top left of the Amazon landing page, then clicking on “Your Account,” then “Prime,” followed by “Update, cancel and more,” and then clicking on “End membership;” (iii) clicking the “Help” link located toward the bottom of the Amazon landing page, then clicking on “End your Amazon Prime Membership” followed by “End Your Prime Membership;” (iv) searching “cancel membership” in the search bar of the Amazon landing page, then clicking on the link for “End Your Amazon Prime Membership,” followed by the button for “End Your Prime Membership.”

¹⁴⁷ Chetty Opening Report, ¶ 207.

9) because “most of the visual space on this Prime Central page is focused on Prime benefits” and “the word ‘cancel’ appears...in the smallest font on the page” and “is sandwiched between ‘update’ and ‘and more.’”¹⁴⁸ She further claims that Amazon included “additional unnecessary steps” for consumers to locate the entry point of the cancellation flow because “after selecting ‘Manage membership’ in a hidden dropdown menu, a consumer has to sift through multiple options, such as ‘Share your benefits’ and ‘Remind me before renewing,’ before reaching ‘End Membership,’ which is placed at the bottom of the vertical list.”¹⁴⁹ The Prime Central page with the dropdown menu for “Management Membership” is reproduced in Exhibit 10. Prof. Chetty provides no evidence that these UI design elements created any issues or barriers for consumers to locate the entry point of Amazon cancellation flow. It is unclear what the basis is for Prof. Chetty’s objections that the Prime Central page should not focus on Prime membership benefits, considering that the Prime Central page provides information on topics related to Prime membership. Similarly, it is unclear the basis for Prof. Chetty’s objection to Amazon putting “Update, cancel and more” under “Manage Membership” or presenting consumers options other than cancellation when consumers select the “Management membership.” Consumers may certainly want to update when managing their membership. As discussed in the Hoffman Opening Report, it is logical to have the cancellation option among other items on a menu of options given that consumers are not necessarily coming to the Prime webpage to cancel; rather, they might be seeking to engage in any number of actions (e.g., update payment method, or review member benefits).¹⁵⁰ Moreover, this practice of presenting a discrete amount of information on each page is consistent with the principles of progressive disclosure discussed in the Hoffman Opening Report.¹⁵¹ As discussed in the Hoffman Opening Report, the progressive disclosure of information in the cancellation process provides consumers with the benefits and costs associated with Prime membership in a gradual way that is unlikely to overwhelm the consumer, so that they can make an informed choice about canceling.¹⁵² Accordingly, it is not

¹⁴⁸ Chetty Opening Report, ¶ 211.

¹⁴⁹ Chetty Opening Report, ¶ 213.

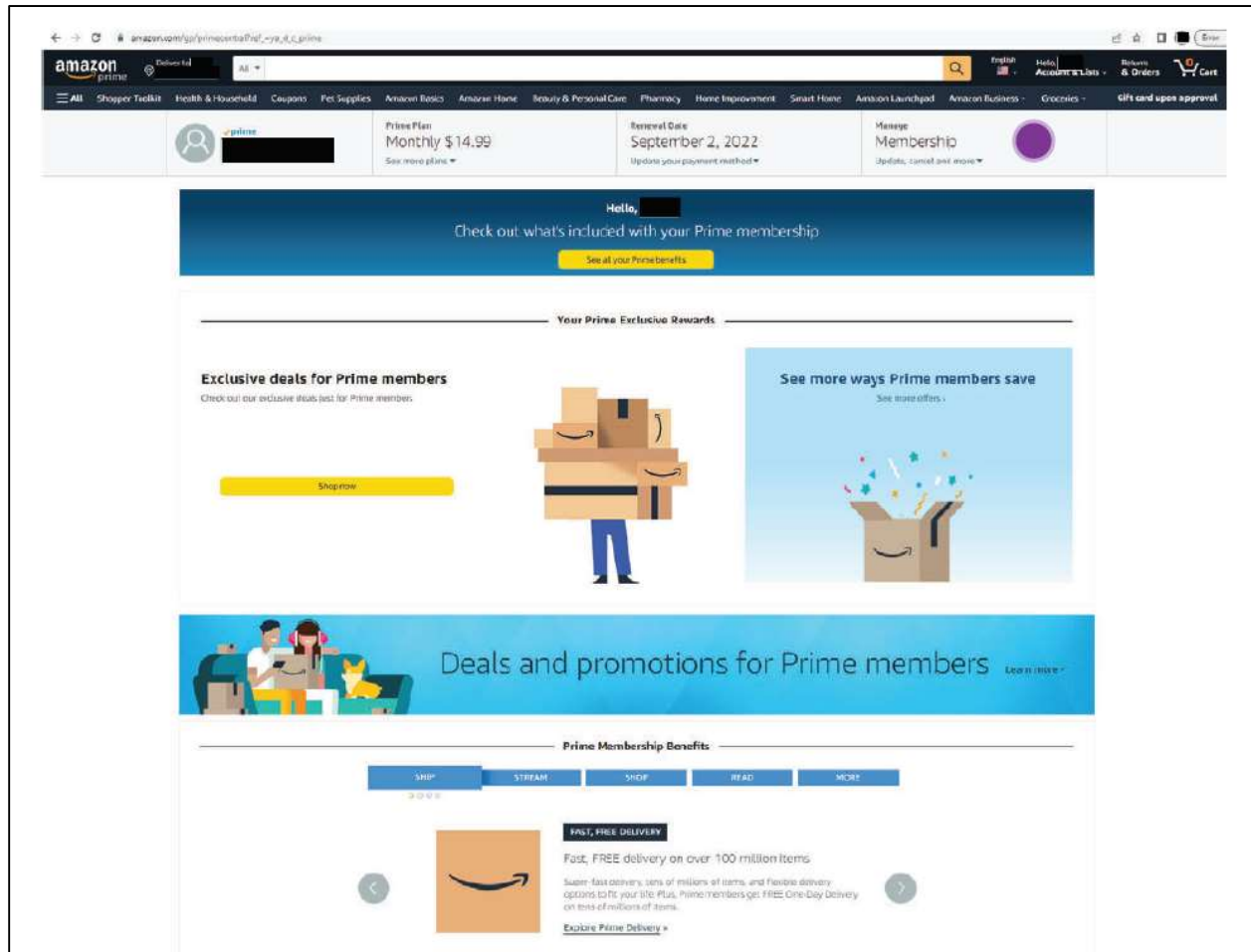
¹⁵⁰ Hoffman Opening Report, ¶ 222.

¹⁵¹ Hoffman Opening Report, ¶¶ 199–200.

¹⁵² Hoffman Opening Report, ¶ 200.

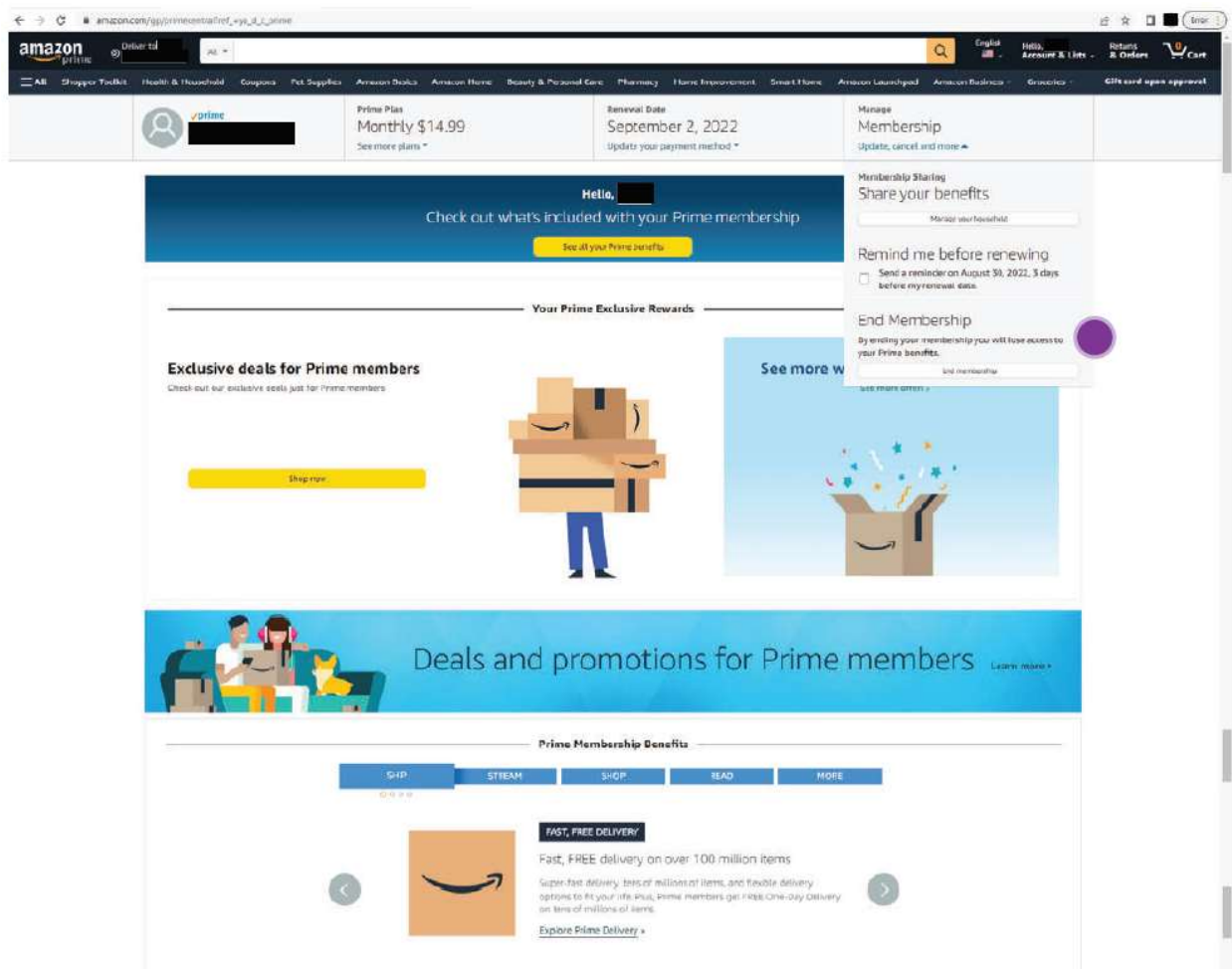
clear why it would be inappropriate for consumers to be presented with several options, including the option to cancel their membership at this juncture.¹⁵³

Exhibit 9 Prime Central Page



Source: Chetty Opening Report, Attachment L, p. 1.

¹⁵³ Hoffman Opening Report, ¶ 222.

Exhibit 10 Prime Central Page with Manage Membership Dropdown Menu

Source: Chetty Opening Report, Attachment L, p. 2.

54. Prof. Chetty next evaluates each of the three pages of the Pre-April 2023 Cancellation Flow. She refers to the first page of the flow as “Iliad’s Marketing Page,”¹⁵⁴ which I reproduce in Exhibit 11. According to Prof. Chetty, the first page of the Pre-April 2023 Cancellation Flow “floods” consumers with information on Prime benefits, “[n]one of [which] is related to cancelling Prime and creates cognitive overload on the consumer,” to “distract users from proceeding with their cancellation.”¹⁵⁵ Prof. Chetty fails to consider that different consumers enter the cancellation process with different goals and motivations or that consumers may benefit from information regarding Prime membership and its benefits. As discussed in the Hoffman

¹⁵⁴ Chetty Opening Report, § VII.a.ii.

¹⁵⁵ Chetty Opening Report, ¶¶ 220–221.

Opening Report, while some consumers may be interested in exploring cancellation, not all consumers will have formed an intent to cancel and will require additional steps in their decision processes before deciding whether to cancel or not. Thus, the information on benefits such as free access to streaming services or additional payment plans might help consumers make informed decisions and therefore are related to the consumer's decision to continue with cancellation.¹⁵⁶ Additionally, Prof. Chetty fails to consider that consumers are familiar with websites presenting the benefits of their paid digital membership/subscription programs in the cancellation flow. As illustrated in my comparative analysis in the Hoffman Opening Report, I found that among the 45 popular paid digital membership/subscription programs I reviewed that allow online cancellation, most programs (36 programs, 80%) mentioned the benefits of their paid digital membership/subscription program during their desktop cancellation flow.¹⁵⁷

55. Prof. Chetty further claims that, on the first page of the Pre-April 2023 Cancellation Flow, Amazon uses “choice overload” by offering “two options to abandon the cancellation flow...and only one option to proceed to cancel[lation]” which she claims, “lead users to abandon cancellation.”¹⁵⁸ Prof. Chetty provides no evidence that any Amazon consumer abandoned the cancellation flow simply because Amazon presented options other than canceling within the flow.¹⁵⁹ Moreover, she fails to recognize that offering consumers the option to stay enrolled or get reminded later about cancellation can be considered as a customer retention effort. As I discussed in the Hoffman Opening Report, options such as these represent standard customer retention practices, as the academic marketing literature shows that it is more cost-

¹⁵⁶ Hoffman Opening Report, ¶¶ 213–214.

¹⁵⁷ Hoffman Opening Report, ¶ 302, Exhibit 74.

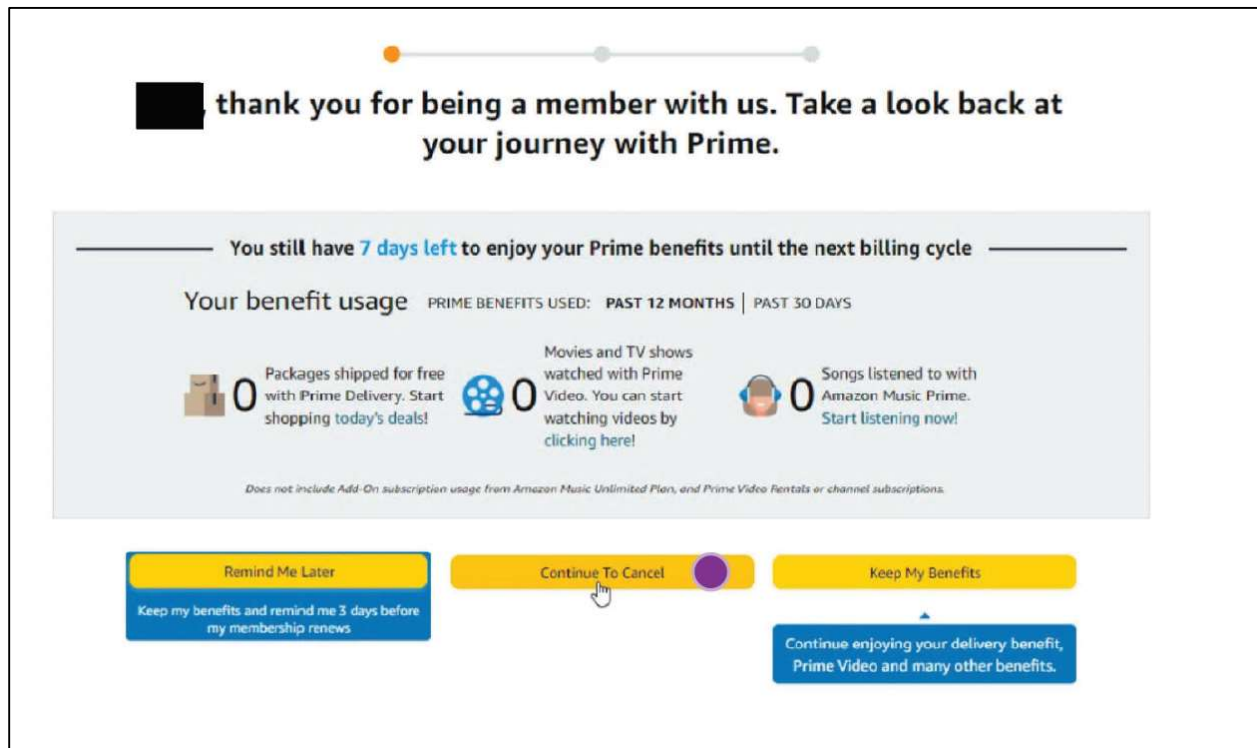
¹⁵⁸ Chetty Opening Report, ¶ 223. Relatedly, Prof. Chetty claims that Amazon “does not present users with logical symmetric choices, or clear binary options, to cancel their Prime subscription or abandon cancellation. This creates a cognitive burden, requiring the user to expend additional mental effort to figure out how to interpret the information they are seeing and decide how to act, which can hamper decision-making.” Chetty Opening Report, ¶ 225. However, Prof. Chetty provides no evidence that any Amazon consumer spent “additional mental effort” to interpret the “Remind Me Later” option and because of this, failed to continue canceling Prime from this page.

¹⁵⁹ Prof. Chetty fails to recognize that even if it is true that consumers are taken out of the cancellation flow by choosing “Remind Me Later” or “Keep My Benefits,” consumers could use the back button on their browsers to go back to the cancellation flow if they desired, and resume progression in the cancellation flow to complete canceling their Prime membership. Alternatively, consumers who intend to cancel after exiting the cancellation flow by clicking call-to-action features that take them out of the flow, can re-enter the flow using the various ways I discussed in this section and in the Hoffman Opening Report. *See, e.g.*, Hoffman Opening Report, ¶ 36.

effective for companies to retain consumers than acquire new ones.¹⁶⁰ Moreover, Prof. Chetty fails to consider that consumers are familiar with being presented with alternatives to immediately canceling as they go through a cancellation process. As illustrated in my comparative analysis in the Hoffman Opening Report, I found that among the 45 popular paid digital membership/subscription programs I reviewed that allow online cancellation, the majority of the programs (30 programs, 67%) presented consumers with alternatives to immediately canceling the program (or the free trial of the program) within the cancellation flow during the desktop cancellation process.¹⁶¹

¹⁶⁰ Hoffman Opening Report, ¶¶ 57–59, 83, 231, Section VII. Kotler, P. and K. Keller (2016), *Marketing Management*, 15th ed., Hoboken, NJ: Prentice Hall, p. 168 (“Companies are using information about customers to enact precision marketing designed to build strong long-term relationships”); Reinartz, W. et al. (2005), “Balancing Acquisition and Retention Resources to Maximize Customer Profitability,” *Journal of Marketing*, 69, 1, 63–79 at p. 65 (“Therefore, the ability to customize the message easily and build personal bonds with customers will eventually lead to greater retention through personal selling...”).

¹⁶¹ Hoffman Opening Report, ¶ 300, Exhibit 74.

Exhibit 11 First Page of the Pre-April 2023 Cancellation Flow

Source: Chetty Opening Report, Attachment L, p. 3.

56. Prof. Chetty also claims that “Amazon uses Visual Prominence by applying highlights to direct the user to specific options that do not lead to canceling Prime.”¹⁶² Prof. Chetty claims that “both the ‘Remind Me Later’ and the ‘Keep My Benefits’ buttons have an eye-catching blue frame...that draws the user’s attention, but the ‘Continue to Cancel’ option does not.”¹⁶³ Importantly, as discussed in the Hoffman Opening Report, in fact, many consumers are likely to be familiar with websites presenting the call-to-action feature to cancel and the call-to-action feature to remain enrolled in the digital membership/subscription programs, using different colors. As illustrated in my comparative analysis in the Hoffman Opening Report, I found that among the 41 popular paid digital membership/subscription programs I reviewed that allow online cancellation and had call-to-action features for both canceling the program and remaining

¹⁶² Chetty Opening Report, ¶ 227.

¹⁶³ Chetty Opening Report, ¶ 227.

enrolled in the program on the same page of the cancellation flow,¹⁶⁴ the vast majority of programs (39 programs, 95%) presented call-to-action features to cancel and those to remain enrolled in the program in different colors.¹⁶⁵

57. Additionally, Prof. Chetty also claims that, on the first page of the Pre-April 2023 Cancellation Flow, “Amazon uses confirmshaming language to dissuade Amazon [consumers] from canceling Prime.”¹⁶⁶ As discussed in Section IV.A above, Prof. Chetty does not provide any support for her claims that the “Keep My Benefits” or the “[Redacted], thank you for being a member with us. Take a look back at your journey with Prime” language would elicit “feelings of regret” from Amazon consumers or that any such feelings would have influenced their decision-making away from canceling Prime. Once again, Prof. Chetty did not use any tools that have been developed by researchers to classify text into lexical categories that evoke specific emotional responses, to demonstrate that the wording of these messages would evoke feelings of regret or any emotion that is different from those evoked by “Continue to Cancel” on the same page or by the rest of the Amazon website.¹⁶⁷

58. Prof. Chetty refers to the second page of the Pre-April 2023 Cancellation Flow as “Iliad’s Offers Page,”¹⁶⁸ which I reproduce in Exhibit 12. Prof. Chetty claims that the second page of the Pre-April 2023 Cancellation Flow has some of the same allegedly problematic design features as the first page, such as “present[ing] users with information that is nearly exclusively focused on alternative Prime payment plans” and using “choice overload.”¹⁶⁹ I have explained above in this section that these claims are baseless and inconsistent with standard marketing practice and fail to consider consumers’ familiarity with these design elements.

¹⁶⁴ Of the 48 paid digital membership/subscription programs I examined, 41 programs had call-to-action features for both canceling the program and remaining enrolled in the program on the same page of the cancellation flow. Hoffman Opening Report, ¶ 306.

¹⁶⁵ Hoffman Opening Report, ¶ 306.

¹⁶⁶ Chetty Opening Report, ¶ 228.

¹⁶⁷ Section, IV.A.1; Hoffman Opening Report, ¶¶ 119–121.

¹⁶⁸ Chetty Opening Report, § VII.a.iii.

¹⁶⁹ Chetty Opening Report, ¶¶ 235–236.

Exhibit 12 Second Page of the Pre-April 2023 Cancellation Flow

save \$40.88 over 12 months by switching to annual payments

⚠ Items tied to your Prime membership will be affected if you cancel your membership.

1. By cancelling, you will no longer be eligible for your unclaimed **Prime exclusive offers**.

Get all the benefits of Prime for less

We'd like to offer you the chance to enjoy all the benefits of Prime for only \$139/year.

Switch to annual payments >

[Are you a student?](#)
[Have an EBT card/receive government assistance?](#)

By clicking "Switch to annual payments", your default payment method or another available payment method on file will be charged \$139/year plus any applicable taxes. Your Prime membership will continue until cancelled. You will be refunded \$14.99 for your current plan.

Remind Me Later
 Keep my benefits and remind me 3 days before my membership renews

Continue to cancel

Keep My Membership
 Continue enjoying your delivery benefit, Prime Video and many other benefits.

Source: Chetty Opening Report, Attachment L, p. 4.

59. Prof. Chetty notes that, on the second page of the Pre-April 2023 Cancellation Flow, the button to remain enrolled, “Keep My Membership,” uses different language compared to “Keep My Benefits” on the first page of the cancellation flow.¹⁷⁰ While Prof. Chetty states that this button “improved” on the second page, she claims that “[t]he pattern disruption in this language... can confuse the user, who needs to process new information on the second page.”¹⁷¹ Once again, Prof. Chetty provides no evidence that any Amazon consumers were “confuse[d]” by this change in language and, as a result, failed to cancel Prime. Moreover, Prof. Chetty fails to recognize that the language on each page matched with the information presented on the page. Specifically, Amazon presented Prime benefits on the first page of the cancellation flow and

¹⁷⁰ Chetty Opening Report, ¶ 238.

¹⁷¹ Chetty Opening Report, ¶ 238.

used the language “Keep My Benefits,” while presenting additional payment methods or plans for Prime on the second page and used the language “Keep My Membership.” Considering the content presented on the page, the different language between the two pages informs consumers how their choices are related to the content presented. Again, this is related to the progressive disclosure principles I discussed above and in the Hoffman Opening Report.¹⁷² The progressive disclosure makes it easier for consumers to learn information and less likely for consumers to make errors (e.g., cancel by mistake or cancel from a lack of understanding).¹⁷³ Based on these principles, consumers can benefit from information being presented gradually on multiple pages, and it would make logical sense for the choices presented on each page to be tailored to the information presented on the page.

60. Prof. Chetty further claims that, on the second page of the Pre-April 2023 Cancellation Flow, “the use of the warning icon with the text ‘[i]tems tied to your Prime membership will be affected if you cancel your membership’ suggests to users that they are on the verge of experiencing a loss that can trigger loss aversion. This is also an instance of Emotional or Sensory Manipulation (Interface Interference.)”¹⁷⁴ While Prof. Chetty provides no empirical evidence that the “warning icon” and the accompanying text would “trigger loss aversion” among Amazon consumers, she fails to consider that the message provides potentially relevant information to support consumers’ decisions. As discussed in the Hoffman Opening Report, the use of “warning icons” next to important messages to invite consumers to pay attention, and the presentation of options using different formats (e.g., additional information next to a button), are online features that websites can use that are consistent with effective design principles and consumers’ expectations about how content and call-to-action features on a webpage are presented.¹⁷⁵ As explained in the Hoffman Opening Report, in general, “warning icons” are commonly found online, including on the homepage of the FTC website.¹⁷⁶

¹⁷² See Section IV.A.1 above; Hoffman Opening Report, ¶¶ 199–200.

¹⁷³ “Progressive Disclosure,” *Nielsen Norman Group*, December 3, 2006, www.nngroup.com/articles/progressive-disclosure/.

¹⁷⁴ Chetty Opening Report, ¶ 239.

¹⁷⁵ Hoffman Opening Report, ¶ 219; “Confirmation Dialogs Can Prevent User Errors — If Not Overused,” *Nielsen Norman Group*, February 18, 2018, <https://www.nngroup.com/articles/confirmation-dialog/>; “Indicators, Validations, and Notifications: Pick the Correct Communication Option,” *Nielsen Norman Group*, January 17, 2024, <https://www.nngroup.com/articles/indicators-validations-notifications/>.

¹⁷⁶ Hoffman Opening Report, ¶¶ 219–220, Exhibit 41.

61. Prof. Chetty refers to the third page of the Pre-April 2023 Cancellation Flow as “Iliad’s Cancellation Page,”¹⁷⁷ which I reproduce in Exhibit 13. Prof. Chetty claims that this page has some of the same allegedly problematic design features as the first two pages, such as “choice overload and lack of symmetrical choices” and use of “positive and negative framing to induce a sense of loss in the user by using warning icons that can make a user worried or concerned about losing items tied to Prime.”¹⁷⁸ I have explained above that these claims are flawed and inconsistent with standard marketing practice and fail to consider consumers’ familiarity with these design elements.

¹⁷⁷ Chetty Opening Report, § VII.a.iv.

¹⁷⁸ Chetty Opening Report, ¶¶ 249, 252.

Exhibit 13 Third Page of the Pre-April 2023 Cancellation Flow

[Redacted] we're sorry to see you go. Please confirm the cancellation of your membership.

You could also consider the following:

Remind Me Later
Remind me three days before my membership renews.

Keep My Membership
You will continue enjoying all the benefits of Prime.
View everything included in Prime.

Pause your Prime membership:

Items tied to your Prime membership will be affected if you pause your membership.

1. By pausing, you will no longer be eligible for your unclaimed Prime exclusive offers. Click here to see your offers.

Pause on September 02, 2022
Your benefits access will continue until September 02, 2022. After that date, your billing and benefits will be paused, and you will no longer be charged for your Prime membership. Use the quick-resume function anytime to regain access to your Prime benefits. [Learn More.](#)

Cancel your Prime membership:

Items tied to your Prime membership will be affected if you cancel your membership.

1. By cancelling, you will no longer be eligible for your unclaimed Prime exclusive offers.

End on September 02, 2022
Your benefits will continue until September 02, 2022, after which your card will not be charged.

OR

End Now
Your benefits will end immediately and you will be refunded \$14.99 for the remaining period of your membership.

Source: Chetty Opening Report, Attachment L, p. 5.

62. Additionally, Prof. Chetty claims that the Pre-April 2023 Cancellation Flow contains “[n]agging” by offering consumers an option to remain subscribed to Prime on the second page of the flow.¹⁷⁹ Additionally, Prof. Chetty claims that “the repetition of the ‘Remind Me Later’ button throughout the [Pre-April 2023 Cancellation Flow] is a design technique to wear down the user (a Nagging dark pattern).”¹⁸⁰ Furthermore, Prof. Chetty claims that Amazon used “repetitive text” such as presenting “[i]tems tied to your Prime membership will be affected if you cancel your membership” language twice on the third page of the flow to “distract the user.”¹⁸¹ However, Prof. Chetty provides no evidence that Amazon consumers were “[worn] down” or “distract[ed]” by these UI design elements. Importantly, Prof. Chetty fails to recognize that offering an option to remain enrolled can avoid cancellations that occur by mistake or from lack of understanding, along with any possible disruptions caused by an accidental cancellation. Moreover, as described in the Hoffman Opening Report, according to progressive disclosure principles, consumers can benefit from information being presented gradually on multiple pages rather than a single page because the gradual introduction of information is cognitively easier to process.¹⁸² Relatedly, it would make logical sense to offer the consumer the option to remain enrolled or to be reminded later on each page as more information is presented, as different consumers might make different decisions at different stages of the cancellation flow based on the information presented.

63. Prof. Chetty claims that some of the at-issue UI design elements discussed for the desktop are also present or even more problematic in the mobile cancellation process. For example, Prof. Chetty claims that the “entry point to Iliad from the Prime Central page on a mobile device is even harder on a mobile device than on a desktop” and “the switch in the wording on the buttons ‘Keep my membership’, ‘Continue to cancel’, and ‘Remind me later’ may be less noticeable on the smaller screen.”¹⁸³ Additionally, Prof. Chetty claims that some at-issue UI design elements are more problematic on mobile devices because consumers need to scroll on the device to “locate the entry point [of the cancellation flow] or “find the ‘End now’

¹⁷⁹ Chetty Opening Report, ¶ 240.

¹⁸⁰ Chetty Opening Report, ¶ 250.

¹⁸¹ Chetty Opening Report, ¶ 251.

¹⁸² Hoffman Opening Report, ¶¶ 212, 213, 259.

¹⁸³ Chetty Opening Report, ¶¶ 215, 229, 241.

option which is listed last.”¹⁸⁴ While all of my criticisms of Prof. Chetty’s claims on the desktop cancellation flow discussed in this section apply to the mobile cancellation flow, she provides no support that Amazon consumers are more “confused” by the mobile cancellation flow, and as a result more likely to fail to cancel Prime using mobile than desktop as she alleges. Moreover, Prof. Chetty’s claim that consumers need to scroll on their mobile to locate the cancellation option fails to consider the progressive disclosure principles discussed in the Hoffman Opening Report and above.¹⁸⁵ Based on these principles, too much information presented on a single page, especially on the smaller screens of mobile devices (such as a smartphone) might be difficult for consumers to process, and consumers can benefit from a gradual introduction of information. Additionally, Prof. Chetty ignores that consumers are familiar with scrolling when using mobile devices as shown by research on consumer experiences discussed in the Hoffman Opening Report.¹⁸⁶

2. Prof. Chetty’s Conclusions From the “Cognitive Walkthrough” of the Amazon Prime Cancellation Flows After April 2023 Are Flawed and Unreliable

64. In reference to Amazon’s cancellation flow after April 2023 (“Post-April 2023 Cancellation Flow,” which I reproduce in Exhibit 14), which Prof. Chetty refers to as “Iliad 2.0,” Prof. Chetty acknowledges that in some respects this flow is an improvement over the Pre-April 2023 Cancellation Flow,¹⁸⁷ while still claiming that this flow contains “dark patterns.” I explained in Section IV.B.1 above that Prof. Chetty’s claims that the Pre-April 2023 Cancellation Flow contains “dark patterns” lack proper basis, do not consider standard marketing practices, are inconsistent with the basic tenets of online consumer behavior and experience, and ignore consumers’ likely familiarity with the UI design elements at issue (or those similar to them). Prof. Chetty’s conclusions about the Post-April 2023 Cancellation Flow containing “dark patterns” suffer from similar shortcomings as the ones Prof. Chetty reaches for the Pre-April 2023 Cancellation Flow. To the extent that Prof. Chetty asserts that similar UI design elements in

¹⁸⁴ Chetty Opening Report, ¶¶ 215, 253.

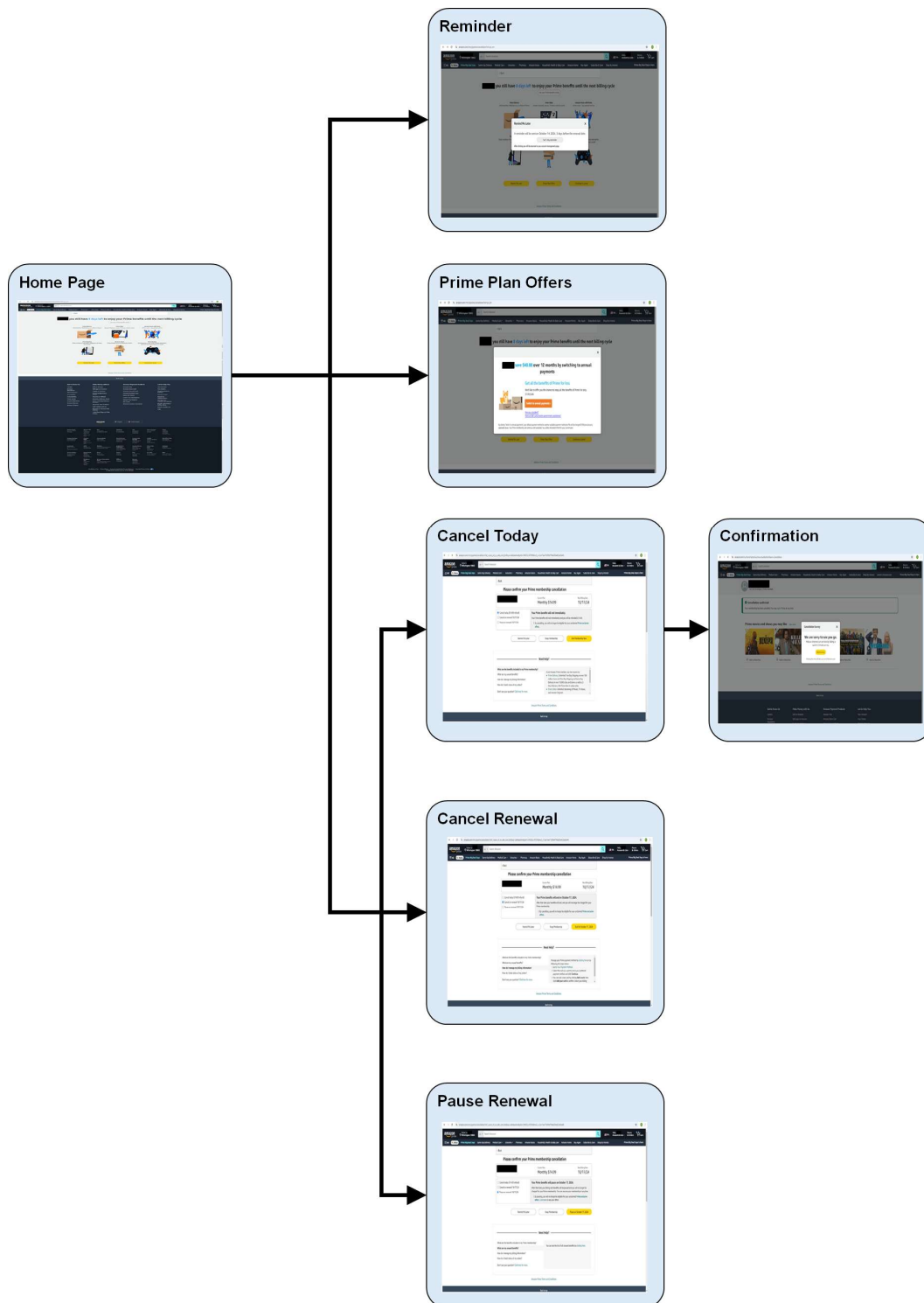
¹⁸⁵ See Section IV.A.1 above; Hoffman Opening Report, ¶ 259.

¹⁸⁶ Hoffman Opening Report, ¶¶ 254–255.

¹⁸⁷ Chetty Opening Report, ¶¶ 267, 275–279.

the Post-April 2023 Cancellation Flow contain the same alleged “dark patterns” as in the Pre-April 2023 Cancellation Flow, my analyses and conclusions described in Section IV.B.1 are applicable and demonstrate that her claims are flawed and unreliable. In this section, I evaluate Prof. Chetty’s claims regarding pages in the Post-April 2023 Cancellation Flow, focusing on allegedly problematic UI design elements distinct from those in the Pre-April 2023 Cancellation Flow.

Exhibit 14 Post-April 2023 Cancellation Flow



Source: Chetty Opening Report, Attachment T.

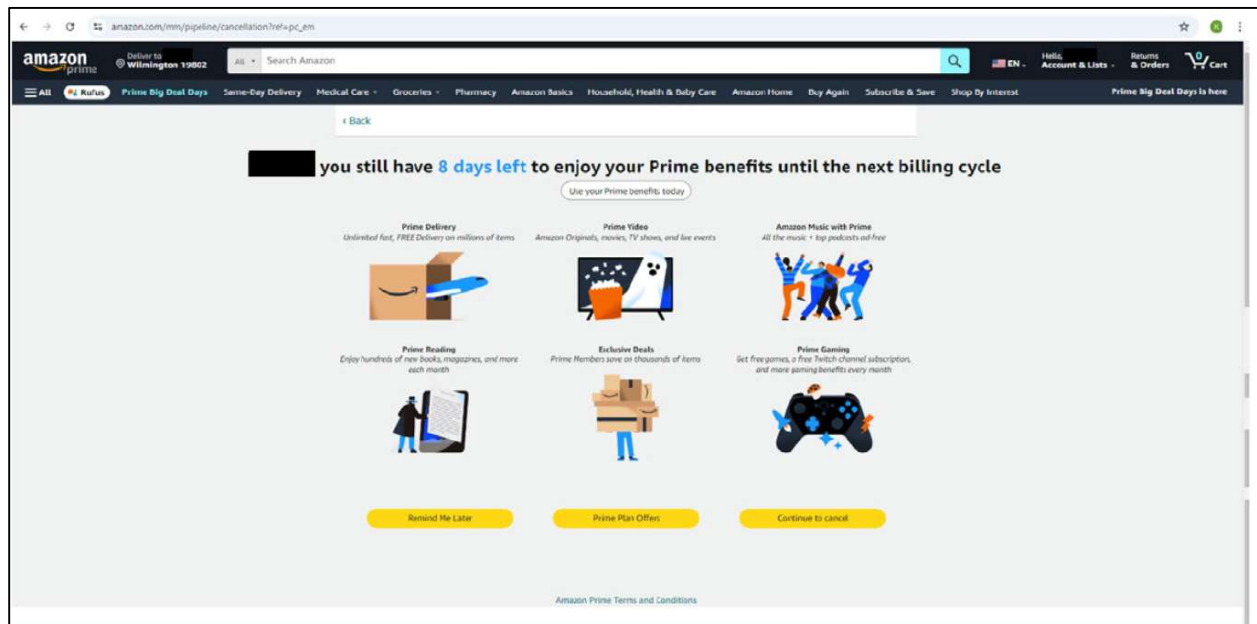
Note: Based on the content of the Confirmation Page (Chetty Opening Report, Attachment T, p. 8), I understand this page is presented after consumers choose “Cancel today (\$14.99 refund)” on the second page of the Post-April 2023 Cancellation Flow. To the extent this is the page presented when consumers choose other options on the second page of the Post-April 2023 Cancellation Flow, my opinions in this section stay the same.

65. Prof. Chetty refers to the first page of the Post-April 2023 Cancellation Flow as “Iliad 2.0’s Marketing Page,”¹⁸⁸ which I reproduce in Exhibit 15. Prof. Chetty claims that on the first page of the Post-April 2023 Cancellation Flow, “[t]he language for the ‘Prime Plan Offers’ button is vague and a user may need to click on the button to figure out what it means, distracting them from cancelling their membership.”¹⁸⁹ Prof. Chetty does not explain why the language is “vague” and provides no evidence that Amazon consumers were “distract[ed]” by this option, and were prevented from canceling Prime. If anything, the overlay shown after clicking the option of “Prime Plan Offers” presents alternative annual Prime plans, as shown in Exhibit 16, with additional options that contain information for students, and government assistance recipients, which makes the language “Prime Plan Offers” an accurate description of the information presented when chosen. Prof. Chetty also does not consider that consumers might benefit from the information presented on the page once consumers click this option, as consumers might not be fully aware that Prime offers both monthly and yearly plans and additional discounts for students and people receiving benefits from certain government programs, some or all of which might also change their cancellation decision. Furthermore, based on Exhibit 16, even after consumers choose “Prime Plan Offers,” they can continue with the cancellation flow by clicking on the “X” at the top right corner to close the overlay. That is, this option does not take consumers out of the cancellation flow; it just offers consumers who are interested in alternative offers a chance to learn about them before making the cancellation decision. As I discussed in the Hoffman Opening Report, the Amazon cancellation flow is designed around consumers’ heterogeneous needs and empowers consumers in their decision processes. Amazon does not know what its customers are thinking (e.g., whether they are interested in or would benefit from alternative plans), nor where they are in their decision-making process when they enter the cancellation flow. Amazon designs the cancellation flow to accommodate the many different needs consumers might have.¹⁹⁰

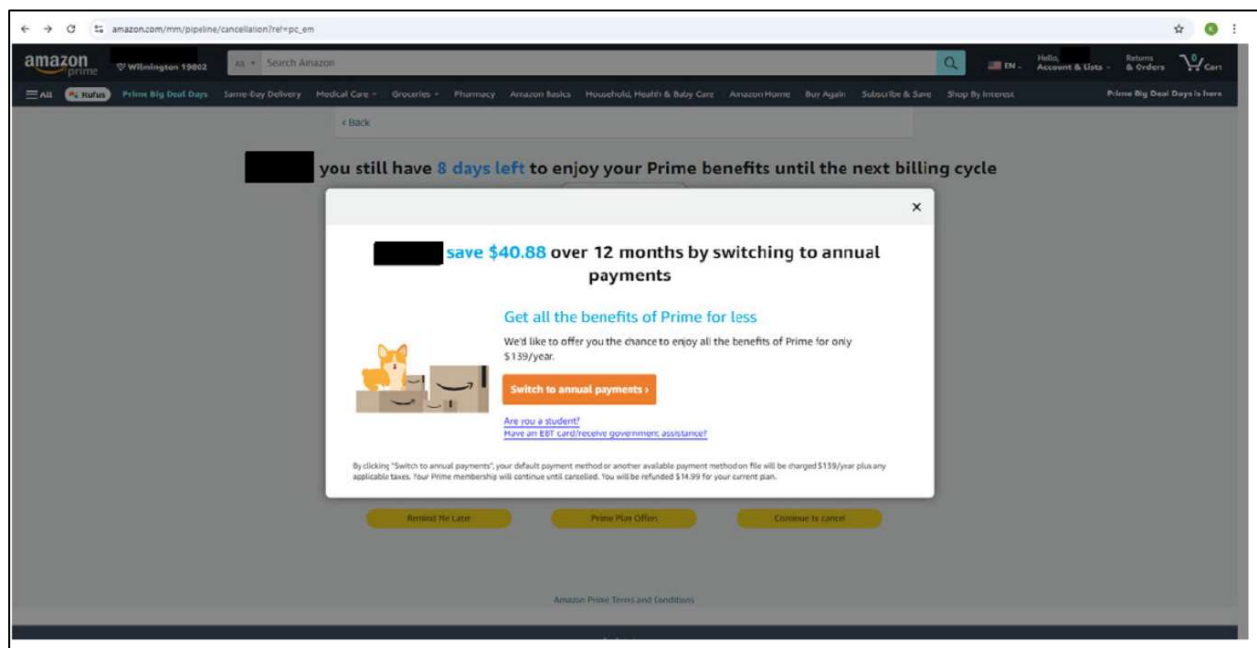
¹⁸⁸ Chetty Opening Report, § VII.b.ii.

¹⁸⁹ Chetty Opening Report, ¶ 266.

¹⁹⁰ Hoffman Opening Report, ¶ 226.

Exhibit 15 First Page of the Post-April 2023 Cancellation Flow

Source: Chetty Opening Report, Attachment T, p. 2.

Exhibit 16 Prime Plan Offers Page

Source: Chetty Opening Report, Attachment T, p. 3.

66. Prof. Chetty refers to the second page of the Post-April 2023 Cancellation Flow as “Iliad 2.0’s Cancellation Page”¹⁹¹ which I reproduce in Exhibit 17. Prof. Chetty claims that the second page of the Post-April 2023 Cancellation Flow presents the same three options as on the third page of the Pre-April 2023 Cancellation Flow (shown in Exhibit 13), “but in a format that is more cognitively challenging for the user to understand and subsequently select a cancellation option,” because the options at the bottom of the page changes as consumers choose different radio options.¹⁹² Prof. Chetty then concludes that the second page of the Post-April 2023 Cancellation Flow “is still confusing” and “if a user is not paying attention, they may confirm without reading carefully and not cancel their subscription even if they intended to cancel.”¹⁹³ Prof. Chetty provides no evidence that Amazon consumers found this page “confusing” or any consumer failed to cancel Prime even if they intended to do so. Contrary to Prof. Chetty’s claim that the second page of the Post-April 2023 Cancellation Flow is “more cognitively challenging for the user to understand and subsequently select a cancellation option,” this page follows the principles of progressive disclosure I described in this report as well as in the Hoffman Opening Report.¹⁹⁴ This page not only presents relevant information for consumers who show interest in certain options (i.e., cancel today, cancel on renewal, pause on renewal), but also allows consumers to consider and compare multiple options if they have not fully decided on which option to select. As discussed in the Hoffman Opening Report, different consumers who enter the cancellation process will necessarily have different goals and motivations: while some may be interested in exploring cancellation, not all consumers will have formed an intent to cancel and may require additional steps in their decision processes before deciding whether to cancel or not.¹⁹⁵ Consistent with this, this page is designed to support consumers’ heterogeneous needs and empower consumers in all phases of their decision-making process, depending on their particular objectives. For example, the consumer who enters the cancellation flow with the intent to cancel immediately can just choose “Cancel today (\$14.99 refund),” and read the message “Your Prime benefits will end immediately. Your Prime benefits will end immediately and you will be

¹⁹¹ Chetty Opening Report, § VII.b.iii.

¹⁹² Chetty Opening Report, ¶¶ 275, 277.

¹⁹³ Chetty Opening Report, ¶ 277.

¹⁹⁴ See Sections IV.A.1, IV.B.1. See also Hoffman Opening Report, ¶¶ 199–200; Chetty Opening Report, ¶ 275.

¹⁹⁵ Hoffman Opening Report, ¶¶ 213, 226.

refunded \$14.99 ... By cancelling, you will no longer be eligible for your unclaimed Prime exclusive offers.”¹⁹⁶ On the other hand, the consumer unsure about whether she wants to cancel immediately or cancel on the renewal date can explore these two options and review the additional message related to canceling on renewal date which states “Your Prime benefits will end on [Date]. After that date your benefits will end, and you will no longer be charged for your Prime membership ... By cancelling, you will no longer be eligible for your unclaimed Prime exclusive offers,”¹⁹⁷ which would help her to make an informed decision.

Exhibit 17 Second Page of the Post-April 2023 Cancellation Flow

The screenshot shows the Amazon Prime website's cancellation confirmation page. The header includes the Amazon logo, delivery location (Wilmington 19062), a search bar, and navigation links for account, orders, and cart. The main content area is titled "Please confirm your Prime membership cancellation" and displays the current plan as "Monthly \$14.99" with a next billing date of "10/17/24". It offers three options: "Cancel today (\$14.99 refund)" (selected), "Cancel on renewal 10/17/24", and "Pause on renewal 10/17/24". A message states "Your Prime benefits will end immediately." and "Your Prime benefits will end immediately and you will be refunded \$14.99." with a note that by cancelling, the user will no longer be eligible for unclaimed Prime exclusive offers. At the bottom, there are buttons for "Remind Me Later", "Keep Membership", and "End Membership Now". A "Need Help?" section lists common questions about Prime benefits, and a footer contains the "Amazon Prime Terms and Conditions" link and a "Back to top" button.

¹⁹⁶ Exhibit 17.

¹⁹⁷ Exhibit 17.

amazon.com/mn/pipeline/cancellation/ref_spoen_int_cn_cafe_cont_bhdcp+cafebaseline&pid=CANCELLATION&ms3_cx2ce15ee71b99af794a630e422ed3e4ff

amazon prime Deliver to Wilmington 19002 AS Search Amazon

All Refus Prime Big Deal Days Same-Day Delivery Medical Care Groceries Pharmacy Amazon Basics Household, Health & Baby Care Amazon Home Buy Again Subscribe & Save Shop by Interest Prime Big Deal Days is here

Back

Please confirm your Prime membership cancellation

Current Plan Monthly \$14.99 Next Billing Date 10/17/24

☐ Cancel today (\$14.99 refund)
☒ Cancel on renewal 10/17/24
☐ Pause on renewal 10/17/24

Your Prime benefits will end on October 17, 2024.
 After that date your benefits will end, and you will no longer be charged for your Prime membership.
 1. By cancelling, you will no longer be eligible for your unclaimed Prime exclusive offers.

Remind Me Later Keep Membership End On October 17, 2024

Need Help?

What are the benefits included in my Prime membership?
 What are my unused benefits?
 How do I manage my billing information?
 How do I check status of my orders?
 Don't see your question? Click here for more.

Manage your Prime payment method by clicking here or by following the steps below:
 1. Go to Your Payment Method.
 2. Select the card you want to set as your preferred payment method and click **Continue**.
 3. You can add a new card by clicking **Add a card**, then click **Add your card** to confirm. Select your billing

Amazon Prime Terms and Conditions

Back to top

amazon.com/mn/pipeline/cancellation/ref_spoen_int_cn_cafe_cont_bhdcp+cafebaseline&pid=CANCELLATION&ms3_cx2ce15ee71b99af794a630e422ed3e4ff

amazon prime Deliver to Wilmington 19002 AS Search Amazon

All Refus Prime Big Deal Days Same-Day Delivery Medical Care Groceries Pharmacy Amazon Basics Household, Health & Baby Care Amazon Home Buy Again Subscribe & Save Shop by Interest Prime Big Deal Days is here

Back

Please confirm your Prime membership cancellation

Current Plan Monthly \$14.99 Next Billing Date 10/17/24

☐ Cancel today (\$14.99 refund)
☐ Cancel on renewal 10/17/24
☒ Pause on renewal 10/17/24

Your Prime benefits will pause on October 17, 2024.
 After that date your billing and benefits will be paused and you will no longer be charged for your Prime membership. You can resume your membership at any time.
 1. By pausing, you will no longer be eligible for your unclaimed Prime exclusive offers. Click here to see your offers.

Remind Me Later Keep Membership Pause on October 17, 2024

Need Help?

What are the benefits included in my Prime membership?
 What are my unused benefits?
 How do I manage my billing information?
 How do I check status of my orders?
 Don't see your question? Click here for more.

You can see the list of all unused benefits by clicking here.

Amazon Prime Terms and Conditions

Back to top

Source: Chetty Opening Report, Attachment T, pp. 5–7.

C. Prof. Chetty’s “Cognitive Walkthrough” Ignores that the At-Issue UI Design Elements are Commonly Used Online and Are Likely Familiar to Many Online Consumers

67. As I discussed in the Hoffman Opening Report, consumers’ previous online experiences are one factor influencing how they perceive information in subsequent online experiences.¹⁹⁸ In the Hoffman Opening Report, I conducted an analysis using 48 popular paid digital membership/subscription programs to assess whether consumers are likely to have encountered the at-issue UI design elements (or those similar to them) online.¹⁹⁹ I found that of the at-issue UI design elements I reviewed in the Hoffman Opening Report, all of the 8 at-issue UI design elements in the enrollment process and 6 of the 7 at-issue UI design elements in the cancellation process were present in more than half of the paid digital membership/subscription programs I reviewed.²⁰⁰ This suggests that many consumers are likely to have encountered these UI design elements (or those similar to them) in various online contexts, and such prior encounters would have informed how consumers interacted with the at-issue UI design elements in Amazon’s Prime enrollment and cancellation processes.

68. As discussed above in Sections IV.A–B, Prof. Chetty ignores that some of the UI design elements in Amazon Prime’s enrollment or cancellation processes which she claims are “dark patterns” are commonly used by other popular paid digital membership/subscription programs as shown in the comparative analysis in the Hoffman Opening Report.

69. I further expanded the comparative analysis to include one additional UI design element that Prof. Chetty claims is problematic in Amazon Prime’s enrollment processes. Prof. Chetty claims that the UPDP page, which I reproduced in Exhibit 18, is an “interruption” of consumers’ purchase flow on Amazon.²⁰¹ As I discussed above in Section IV.A, Prof. Chetty’s claim that the UPDP page is an “interruption” of consumers’ purchase flow on Amazon is not supported. Even

¹⁹⁸ Hoffman Opening Report, Section VI.B.

¹⁹⁹ Hoffman Opening Report, Section IX.

²⁰⁰ Hoffman Opening Report, ¶¶ 276, 292, and Exhibits 54, 55, 74.

²⁰¹ Prof. Chetty claims that “[t]he UPDP essentially interrupts the consumer’s shopping process by presenting them with information on a subscription service—Prime—separate from the product they are buying.” *See* Chetty Opening Report, ¶ 116. Prof. Chetty further claims that “[t]he UPDP is therefore unnecessary to placing an order for a product, and the interruption is an example of the dark pattern, Nagging.” *See* Chetty Opening Report, ¶ 118.

accepting Prof. Chetty's claim that the UPDP page is an "interruption," based on my analysis described below, I find that online presentations of such pages to consumers are common.

70. I reviewed the enrollment or purchase processes of 48 popular paid digital memberships/subscriptions to assess whether the website contains a webpage that is an "interruption" of the consumer's enrollment or purchase process, similar to Amazon's UPDP page depicted in Exhibit 18. As explained above in Section IV.A.1, Prof. Chetty's definition of "interruption" is not grounded in any academic literature or theory. However, for the purpose of this analysis, I needed to define an "interruption" to render it amenable for empirical analysis while also trying to capture the spirit of Prof. Chetty's definition. Therefore, I defined an "interruption" of the consumer's enrollment or purchase process to be a standalone webpage or an overlay that only presents content that is different from the content relating to the previous call-to-action feature the consumer clicked.²⁰² For example, Walmart presented an overlay showing an offer for the Walmart+, one of the most popular paid digital membership/subscription delivery programs, after the consumer clicks "Continue to checkout" to purchase items in the product cart,²⁰³ as shown in Exhibit 19 and Exhibit 20. Thus, I identified Walmart+ as having a similar at-issue design element in its purchase process as Amazon Prime. I summarize my findings for this UI design element in Exhibit 21.²⁰⁴ I found that around half of

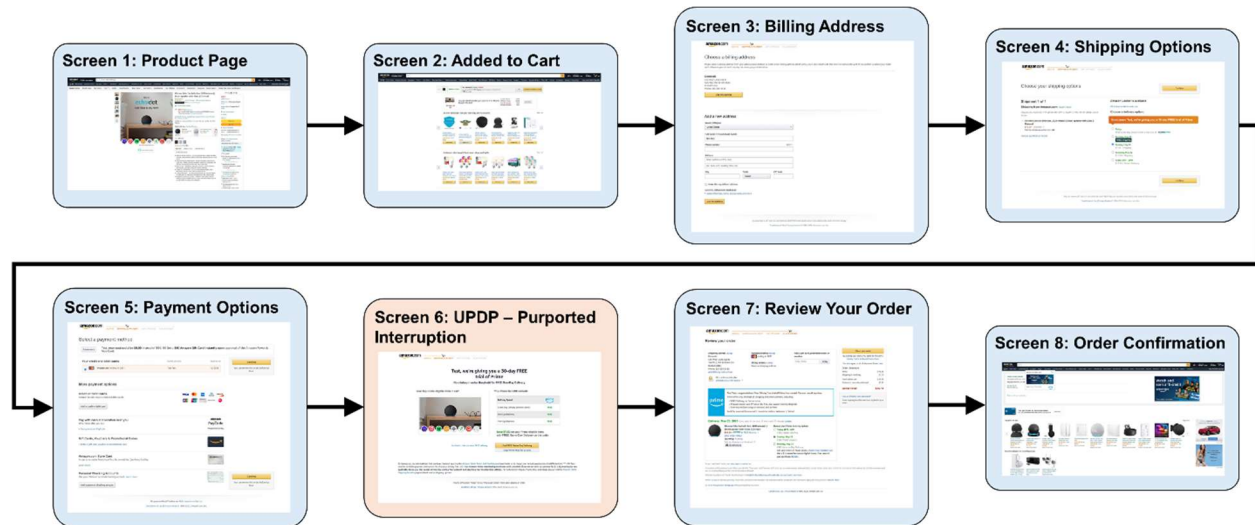
²⁰² See **Appendix C**. Note that this comparative analysis is not an attempt at identifying the so-called "nagging" "dark pattern." None of the metrics I reviewed in my comparative analysis in the Hoffman Opening Report or this report are intended to evaluate any "dark patterns" or could be used to reach conclusions regarding the absence or presence of any "dark patterns" on any website or online interface.

²⁰³ For the purpose of this analysis, I do not consider a webpage that prompts the consumer to sign in to their account (or similar actions such as signing up for an account, entering a password, or providing a two-factor authentication code) an "interruption." Such account sign-in (or similar) webpages are excluded and skipped when considering whether the content of the destination webpage is different from the call-to-action feature clicked immediately preceding the account sign-in (or similar) webpage. See **Appendix C**.

²⁰⁴ I applied the same general methodology as the one I applied for the comparative analysis in the Hoffman Opening Report. See details of the methodology described in Appendix D of the Hoffman Opening Report. For this metric, the coders were trained to review screenshots of the websites of the 48 most popular paid digital membership/subscription programs, following the coding instructions provided in **Appendix C**. At the end of the coding process, the overall level of agreement between the two coders' assessment of whether the website contains a webpage that is an "interruption" of the consumer's enrollment or purchase process was 100%. The overall agreement between the two coders' assessment of the presence or absence of at-issue UI design elements in the enrollment and cancellation processes across *all* metrics I reviewed in *both* the Hoffman Opening Report and this report was 96.2%. To account for the possibility of "chance" as the source of agreement between the two coders, I calculated a reliability coefficient, called Cohen's *kappa*, that adjusts for this likelihood of chance as the source of agreement between coders. The Cohen's *kappa* for the assessment of whether the website contains a webpage that is an "interruption" of the consumer's enrollment or purchase process was 100%. The Cohen's *kappa* for my

the programs (25 programs or 52%) contain webpages that are “interruptions” of the consumer’s enrollment or purchase process.²⁰⁵

Exhibit 18 UPDP page in Amazon Purchase Process

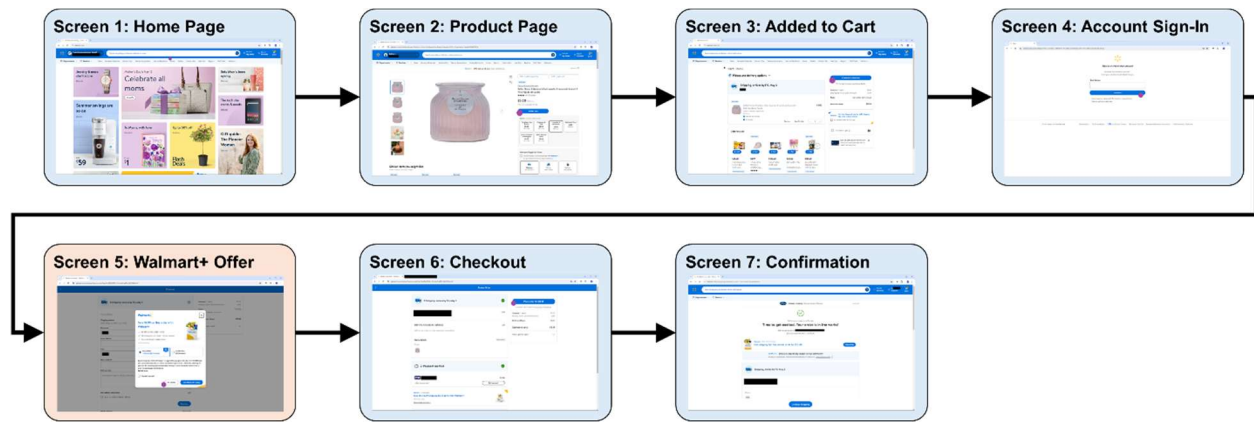


Source: Chetty Opening Report, Attachment B, pp. 13–20.

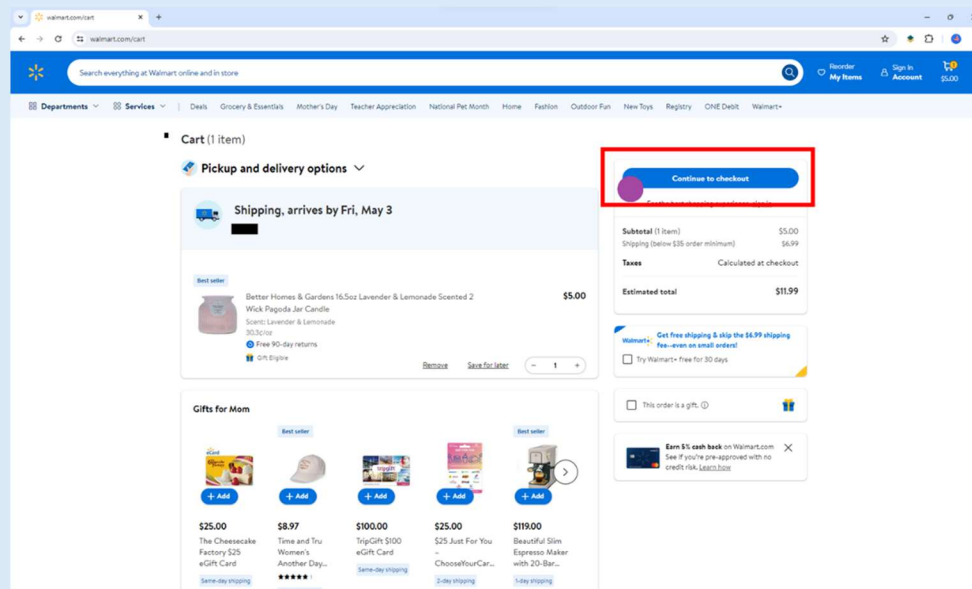
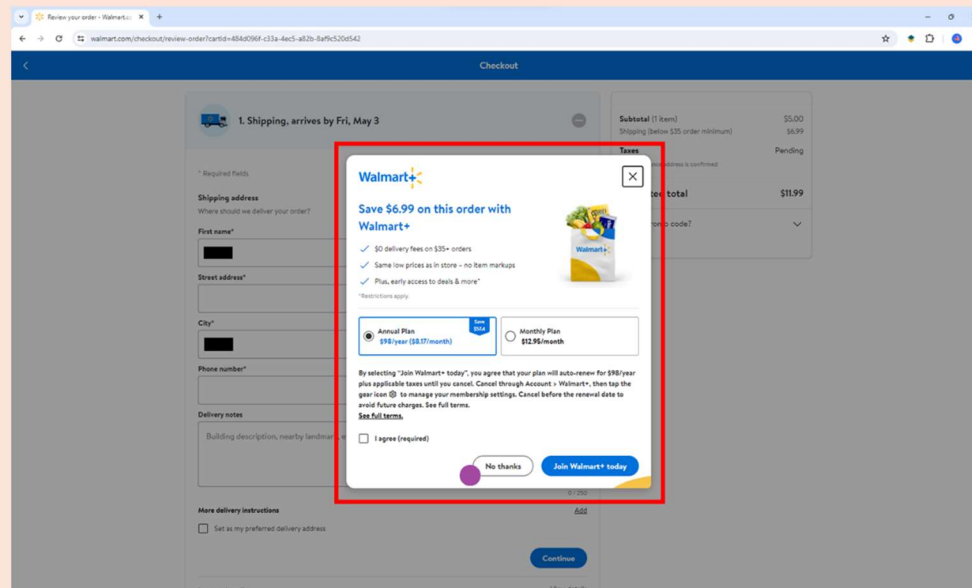
comparative analysis, including all metrics I reviewed in the Hoffman Opening Report and this report, was 91.1%. According to academic literature, a Cohen’s *kappa* of 0.80 or greater suggests “[a]lmost [p]erfect” agreement. See Hoffman Opening Report, Appendix D. See also **Appendix C**; workpaper 1.

²⁰⁵ Evaluating whether a webpage is an interruption for Category 2 companies (companies that use a freemium pricing model) is difficult because for most instances, part of the service or content is only available for consumers with paid membership/subscriptions. For example, a news website might limit the number of free articles a consumer without a paid digital membership/subscription can read. Therefore, it is difficult to determine whether offers for such paid digital membership/subscription programs, where the presence of the offer blocks the consumer, say from reading more free articles, are “interruptions.” The results of my analysis, however, is robust. Excluding all Category 2 companies, I found among the 33 Category 1 and Category 3 companies, 17 programs (51.5%) contain webpages that are “interruptions” of the consumer’s enrollment or purchase process, and among the 16 Category 1 companies (the category Amazon is included in), 10 programs (62.5%) contain webpages that are “interruptions” of the consumer’s enrollment or purchase process. See workpaper 2.

Exhibit 19 Walmart+ Offer in Walmart Purchase Process



Source: Hoffman Opening Report, Appendix E, Walmart+, Decline Offers.

Exhibit 20 Offer of Walmart+ in Walmart+ Enrollment Flow**Screen 3: Added to Cart****Screen 5: Walmart+ Offer**

Source: Hoffman Opening Report, Appendix E, Walmart+, Decline Offers.

Note: Reproduced Screen 3 and Screen 5 from Exhibit 19. Screen 4 is not reproduced because it is a page prompting consumers to sign in to an account. Such webpages are excluded and skipped when considering whether the content of the destination webpage is different from the call-to-action feature clicked immediately preceding the account sign-in webpage.

Exhibit 21 Comparative Analysis

| No. | Service | Website Category ^[2] | Website contains an "interruption" of consumer's navigation during the enrollment or purchase process |
|--|-------------------------------|---------------------------------|---|
| Amazon Prime^[1] | | | ✓ |
| | UPDP | | ✓ |
| | SOSP | | ✓ |
| | SPC | | ✗ |
| | TrueSPC | | ✓ |
| A Streaming | | | |
| A.1 | Netflix | Category 3 | ✗ |
| A.2 | Disney+ | Category 3 | ✓ |
| A.3 | Max | Category 3 | ✗ |
| A.4 | Paramount+ | Category 3 | ✗ |
| A.5 | Hulu | Category 3 | ✗ |
| B Delivery | | | |
| B.1 | Walmart+ | Category 1 | ✓ |
| B.2 | Target Circle 360 | Category 1 | ✓ |
| B.3 | My Best Buy Plus | Category 1 | ✗ |
| B.4 | Costco | Category 1 | ✓ |
| B.5 | Kroger Boost | Category 1 | ✗ |
| C Music | | | |
| C.1 | Spotify Premium | Category 2 | ✗ |
| C.2 | Apple Music | Category 2 | ✓ |
| C.3 | YouTube Music Premium | Category 2 | ✗ |
| C.4 | SiriusXM | Category 3 | ✗ |
| C.5 | Pandora | Category 2 | ✓ |
| D Cloud Storage | | | |
| D.1 | Google One (for Google Drive) | Category 2 | ✗ |
| D.2 | Dropbox Plus | Category 2 | ✓ |
| D.3 | Microsoft 365 (for OneDrive) | Category 2 | ✓ |
| D.4 | Box | Category 2 | ✗ |
| D.5 | Mega | Category 2 | ✓ |
| E Gaming | | | |
| E.1 | PlayStation Plus (PS Plus) | Category 1 | ✗ |
| E.2 | Nintendo Switch Online | Category 1 | ✓ |
| E.3 | Xbox Game Pass | Category 1 | ✗ |
| E.4 | NVIDIA GeForce Now | Category 2 | ✗ |
| E.5 | EA Play | Category 1 | ✓ |
| F Food Delivery | | | |
| F.1 | DoorDash DashPass | Category 1 | ✓ |
| F.2 | Uber One (for Uber Eats) | Category 1 | ✓ |
| F.3 | Instacart+ | Category 1 | ✓ |
| F.4 | 7-Eleven GoldPass | Category 1 | ✓ |
| F.5 | Hello Fresh | Category 3 | ✓ |
| G Live TV | | | |
| G.1 | YouTube TV | Category 3 | ✓ |
| G.2 | Hulu TV | Category 3 | ✗ |
| G.3 | Sling TV | Category 3 | ✓ |
| G.4 | Fubo TV | Category 3 | ✓ |
| H Home Security | | | |
| H.1 | Nest Aware (for Google Nest) | Category 1 | ✗ |
| H.2 | Wyze | Category 1 | ✗ |
| H.3 | SimpliSafe | Category 1 | ✓ |
| H.4 | Xfinity | Category 3 | ✗ |
| I News | | | |
| I.1 | New York Times | Category 2 | ✓ |
| I.2 | Wall Street Journal | Category 2 | ✗ |
| I.3 | Washington Post | Category 2 | ✓ |
| I.4 | Gannett/USA Today | Category 2 | ✓ |
| I.5 | Substack | Category 2 | ✗ |
| J Cybersecurity | | | |
| J.1 | McAfee | Category 3 | ✗ |
| J.2 | Malwarebytes | Category 3 | ✓ |
| J.3 | Avast | Category 3 | ✗ |
| J.4 | AVG | Category 3 | ✓ |
| J.5 | Webroot | Category 3 | ✗ |
| Total Subscription Programs Reviewed [A] | | | 48 |
| # of Programs Not Applicable for Analysis [B] | | | 0 |
| # of Programs Applicable for Analysis [C] = [A] - [B] | | | 48 |
| # of Programs That Are Consistent with Amazon's Practices [D] | | | 25 |
| % of Programs That Are Consistent with Amazon's Practices [E] = [D] / [C] | | | 52% |

Source: See Hoffman Opening Report, Appendix D, Appendix E.

Note:

[1] The results for the Amazon Prime enrollment flows (i.e., UPDP, SOSP, SPC, TrueSPC) are based on applying my comparative analysis method to review the Amazon screenshots for each of the flows. I used the following screenshots to review each Amazon Prime enrollment flows: (1) UPDP: Chetty Opening Report, Attachment B, pp. 13–20; (2) SOSP: Chetty Opening Report, Attachment B, pp. 6–12; (3) SPC: Chetty Opening Report, Attachment B, pp. 21–27; (4) TrueSPC: Chetty Opening Report, Attachment F. *See* Chetty Opening Report, Attachments B, F.

[2] Under “Website Category,” the 48 companies whose enrollment flows I analyzed can be divided into three categories based on the types of products/services they offer: (1) companies that also sell products or services other than the paid digital membership/subscription programs (e.g., Walmart, Best Buy) (“Category 1”), (2) companies that use a freemium pricing model (i.e., companies that offer a free version of their product or service alongside paid digital membership/subscription programs for premium content and services (e.g., YouTube Music, Wall Street Journal)) (“Category 2”), and (3) companies that only offer paid digital membership/subscription programs for streaming content or the services they offer (e.g., Netflix, Xfinity) (“Category 3”). *See* Appendix D of Hoffman Opening Report for more details.

71. This finding suggests that UI design elements that are characterized by Prof. Chetty as “interruptions,” and as operationalized in my empirical analysis, are commonly used online, and many consumers are likely to be familiar with them, independent of their interactions with Amazon website. Prof. Chetty fails to show that consumers would be manipulated by “interruptions,” nor has she presented evidence that they are misleading. While my results are based on the 48 popular paid digital membership/subscription programs I reviewed,²⁰⁶ it is likely that other websites or paid digital membership/subscription programs, which are not included in my analysis, also use overlays or webpages as “interruptions” of consumers’ navigation of the website.

V. Dr. Violette’s Review of “Amazon’s Signup Weblabs” Overlooks Their Methodological Limitations, Does Not Overcome Them, and Provides No Insight into Whether the Weblabs Resulted in Clarity Improvements

A. Dr. Violette’s Review Provides No Insight into Whether the Weblabs Resulted in Clarity Improvements

72. Dr. Violette analyzes results from six Signup Weblabs that were included in an internal “meta-analysis” conducted in 2021 by a small group of Amazon employees.²⁰⁷ These Signup Weblabs are online experiments conducted by Amazon between 2018 and 2020 which aimed to test whether certain UI design changes meant to improve the clarity of the UPDP page had an

²⁰⁶ Hoffman Opening Report, Appendix D, Appendix E.

²⁰⁷ “Measuring the Customer Impact of Prime Clarity,” March 2021, AMZN_00080322–29 at 22 (“[March 2021] DE Retail Analytics and Shopper Frustrations analyzed FreeTrial signups during 6 Universal Prime Decision Page (UPDP) Clarity weblabs in 2018 and 2020 in US and CA.”).

impact on consumer enrollment and retention into Prime.²⁰⁸ Dr. Violette concludes that “the Signup Weblabs randomly assigned participants to treatment and control [groups]; used appropriate sample sizes; and used valid measurement.”²⁰⁹ For each of the weblabs, Dr. Violette performs a statistical analysis of the differences in the value of certain consumer behavior metrics between the treatment and control groups (i.e., signup rate, conversion rate to paid member at 90 days and 12 months, percentage of customers who signed up and were still paying Prime members 12 months later, share of customers who signed up for Prime and contacted customer service to cancel).²¹⁰ He concludes that these differences “can be measured with high statistical precision and the results are statistically significantly different from zero.”²¹¹ Dr. Violette also concludes that “[a]ll six weblabs showed the more prominent or clearer test version resulted in *fewer* consumers subscribing to Prime.”²¹² In other words, Dr. Violette concludes that, for each weblab, the purported clarity improvement caused signups to be lower in the treatment group relative to the control group.

73. Dr. Violette does not provide any support for his opinion that, in the six Signup Weblabs that he analyzed, any improvement in *clarity* had a causal effect on signups (or other metrics),²¹³ other than his own say-so. His statistical analysis of behavioral metrics in the six Signup Weblabs does not provide a basis for such an opinion because:

- a. Dr. Violette does not consider that the six Signup Weblabs he analyzed appear to have been selected for the “meta-analysis” based on ad hoc criteria determined by a small group of Amazon employees, which means that he did not demonstrate

²⁰⁸ “Measuring the Customer Impact of Prime Clarity,” March 2021, AMZN_00080322–29 at 22 (“The objective of this meta-analysis was to measure the impact that these clarity changes had on customer experience, focusing on CS cancellation metrics, benefit usage, and a longer-term 12-month conversion rate. The weblabs in this analysis experimented with the increasing the clarity of a variety of UPDP design elements, such as labels, visual styles for call-to-actions (CTAs), and the prominence of membership price.”).

²⁰⁹ Violette Opening Report, p. i.

²¹⁰ Violette Opening Report, p. i.

²¹¹ Violette Opening Report, p. i. Violette also concludes that, among the 36 treatment and control differences he examined (6 differences for each of the 6 weblabs), 33 were statistically significantly different from zero, using a 1% significance level. *See* Violette Opening Report, ¶ 44.

²¹² Violette Opening Report, p. i (emphasis in original).

²¹³ Violette Opening Report, ¶ 40 (“Since the Signup Weblabs were valid, randomized experiments...the differences in average outcomes across treatment and control groups can be interpreted as the average causal effects of the treatments.”).

that the six Signup Weblabs he analyzes present a complete and reliable assessment of the impact of clarity improvement initiatives on consumers' signups and cancellation decisions;

- b. Dr. Violette does not account for methodological limitations of the Signup Weblabs, including the presence of confounded treatments and the lack of a systematic preliminary analysis of whether the UI changes were addressing sources of confusion, which prevent drawing reliable conclusions about the causal impact of clarity on the observed behavioral metrics;
- c. Dr. Violette cannot assess whether consumers perceived the UI design changes as more clear or less confusing because the Signup Weblabs do not measure or collect cognitive metrics about consumers' cognitive states (i.e., metrics that measure whether consumers are confused by the UI design elements or measure their intention to sign up for Prime);
- d. Dr. Violette ignores changes for behavioral metrics included in the Signup Weblabs that are at odds with Amazon's expectations regarding the impact of an improvement in clarity of the UPDP page; and
- e. Dr. Violette does not consider factors other than clarity that can impact the results of the Signup Weblabs, such as the possibility that the treatment conditions included in the Signup Weblabs made the Prime offer less persuasive relative to the control condition.

74. **First**, Dr. Violette analyzes results from the same list of six Signup Weblabs identified by a small group of Amazon employees in 2021 as "increasing the clarity" of design elements on the UPDP page.²¹⁴ Although the six Signup Weblabs included multiple treatments (T1, T2, T3, etc.), these employees selected only one single treatment from each weblab for inclusion in the "meta-analysis." The Signup Weblabs and treatments (one per weblab) included in the "meta-analysis," and thus in Dr. Violette's analysis, are shown in Exhibit 22 below. Dr. Violette does not assess the representativeness of the six Signup Weblabs and treatments that he analyzes. Instead, Dr. Violette only examines results of Signup Weblabs and treatments that appear to have

²¹⁴ "Measuring the Customer Impact of Prime Clarity," March 2021, AMZN_00080322-29 at 22 ("[March 2021] The weblabs in this analysis experimented with the increasing the clarity of a variety of UPDP design elements.").

been selected based on ad hoc and result-driven criteria, but he does not address these issues nor does he consider what impact they may have on his analysis. As a result, he fails to demonstrate that the six Signup Weblabs and treatments (one per weblab) that he analyzes present a complete and reliable assessment of the impact of clarity improvement initiatives on consumers' signup and cancellation decisions.

| Exhibit 22 | List of UI Design Changes Implemented for Each Treatment in the Six Signup Weblabs Analyzed by Dr. Violette |
|-----------------------------|---|
| Signup Weblab and Treatment | UI Design Changes |
| '575 T6 (2018) | <ul style="list-style-type: none"> • Added "with Amazon Prime" in header • Changed prominence of Prime Price and renewal information • Changed decline CTA link to a button • Changed text of the decline CTA |
| '956 T2 (2018) | <ul style="list-style-type: none"> • Removed shadow of the acceptance CTA |
| '644 T2 (2018) | <ul style="list-style-type: none"> • Changed text of the acceptance CTA • Changed text of the decline CTA |
| '734 T1 (2018) | <ul style="list-style-type: none"> • Added Prime pricing information above the signup button |
| '596 T5 (2020) | <ul style="list-style-type: none"> • Changed text of the acceptance CTA • Removed shadow of the acceptance CTA • Changed decline CTA link to a button • Changed the text of the decline CTA |
| '432 T6 (2020) | <ul style="list-style-type: none"> • Changed text of the acceptance CTA • Removed shadow of the acceptance CTA • Changed decline CTA link to a button • Added text below the decline CTA showing shipping price |

Source: AMZN-PRM-FTC-000367635, AMZN_00028279-85 at 81, 84, AMZN_00047290, AMZN_00047292, AMZN_00047301, AMZN_00047303, AMZN_00047293, AMZN_00047294, AMZN_00046832, AMZN_00046465, AMZN_00046741, AMZN_00046046, Violette Opening Report, ¶ 24.

Note: Call-to-actions ("CTAs") refer to the acceptance and decline options on the UPDP page.

75. Neither Dr. Violette nor the documents he cites demonstrate that the selection of Signup Weblabs and treatments included in the "meta-analysis" is a representative sample of the

weblabs that Amazon conducted between 2018 and 2020 to test improvements in clarity on the UPDP page.²¹⁵ In fact, internal Amazon documents that Dr. Violette does not consider for his analysis indicate that the selection criteria for inclusion in the “meta-analysis” focused on weblabs and/or treatments with large positive differences in the target metrics, which were interpreted as “strong drivers of clarity.”²¹⁶ I understand that Amazon’s employees, specifically User Experience Researcher Reid Nelson, chose these weblabs and treatments for an analysis conducted during the ordinary course of business that aimed to intentionally focus on a small subset of weblabs and/or treatments with large positive differences in the target metrics, and did not aim to be either comprehensive or representative of the studies conducted by Amazon in those years.²¹⁷ Dr. Violette does not consider that the six Signup Weblabs and treatments he analyzes were included in the “meta-analysis” based on such criteria, and that, as a result, they are not representative and likely biased towards large effects.

76. Internal communications between Amazon employees illustrate this issue. For example, a message exchange between Amazon employees Reid Nelson and Ulrich Hendel shows that they evaluated whether to include a particular treatment from a particular weblab into the “meta-analysis” based on its “cancellation metrics,”²¹⁸ and that another treatment would have been

²¹⁵ Amazon conducted more than six weblabs to test improvement in clarity on the UPDP page between 2018 and 2020, as indicated by produced documents with lists of weblabs conducted in U.S. and Europe in those years. *See, e.g.*, FTCAMZN_0016436 (showing a list of weblabs conducted in U.S. related to UPDP and other pages); Email Thread from Reid Nelson to Ulrich Hendel, “RE: UPDP Clarity Weblabs in EU,” February 9, 2021, AMZN-PRM-FTC-000705878–80 at 78–79 (“We’ve identified the 7 weblabs below so far, but any additional labs you can think of would be greatly appreciated to make the analysis more robust ... Here are [five] more [from Italy, UK, France, and Canada] I could dig up quickly, not doing a super deep dive”); Email Thread from Reid Nelson to Omar Kalim, et al., “Re: Privileged and Confidential: Customer Frustrations Follow-up: Prime Frustrations,” February 4, 2021, AMZN_00080635–7 at 5 (“Ulrich is trying to do some post-hoc analyses on former clarity experiments, to get a deeper dig at customer-facing impact. We’ve pulled the following [ten] weblabs as candidates to dive into”).

²¹⁶ Deposition of Reid Nelson, February 27, 2025 (“Nelson Deposition”), p. 192:6–9 (“Q. So experimental treatments that, in your view, were not strong drivers of clarity, didn’t make the cut into the meta-analysis? A. That’s what I believe to be the thesis of those messages.”). *See also* Email Thread from Reid Nelson to Ulrich Hendel, “RE: UPDP Clarity Weblabs in EU,” February 9, 2021, AMZN-PRM-FTC-000705878–80 at 78 (“Yeah I would only add 313703 to our list (already in the list below). 194752 and 197497 don’t meet the sniff test on clarity.”).

²¹⁷ Chat Thread between Reid Nelson and Ulrich Hendel, February 5, 2021, AMZN-PRM-FTC-002473093–105 at 93 (“I suggest we have a summary table with all weblabs we examined and call it a ‘meta-analysis’, and a deep dive on one or two specific ones for which a) you think that treatment clarity was way higher than for control, b) metrics indicate a drop in CS contacts/increase in benefits usage... for b) I’m now looking at benefit usage starting 1 day after signup (remove initial purchase), and at avg benefit usage 31 to 90 days after signup separately (capture paid period benefit usage)”).

²¹⁸ Chat Thread between Reid Nelson and Ulrich Hendel, February 5, 2021, AMZN-PRM-FTC-002473093–105 at 93 (“and could you confirm that for https://weblab.amazon.com/wl/PRIME_238111, T2 is actually less clear than C? Because it shows way worse cancellation metrics”).

included in the “meta-analysis” only “if [the treatment] showed some meaningful differences.”²¹⁹ Similarly, another email exchange between these two Amazon employees about what to include in the “meta-analysis” indicates that some treatments were not included in the analysis because the benefit usage and customer service contacts did not improve significantly in those treatments.²²⁰ In his deposition, Reid Nelson testified that weblabs and treatments were selected for the “meta-analysis” based on the impact of the treatments on either benefit usage (for the 2018 studies) or customer service cancellations (for the 2020 studies).²²¹

77. Indeed, some of the treatments selected for the “meta-analysis” show larger changes in some of the metrics relative to other treatments that were part of the same Signup Weblab but not included in Amazon’s “meta-analysis.” For example, Exhibit 23 lists all the treatments in weblab ‘575, that I have reviewed in the Hoffman Opening Report, and for each treatment presents the difference in specific behavioral metric between the treatment group and the control group.²²² As shown in the exhibit, treatment T6, which is the only treatment from Signup Weblab ‘575 that was included in the “meta-analysis” and thus the only treatment that Dr. Violette examines for this weblab, shows the largest negative impact on signup rate, 90-day conversion rate, and customer service cancellations.²²³

²¹⁹ Chat Thread between Reid Nelson and Ulrich Hendel, February 5, 2021, AMZN-PRM-FTC-002473093–105 at 93 (“Feel free to keep that weblab in the meta analysis if T1 showed some meaningful differences. It is quite subtle though ... If it does... then we might just remove T2 from the meta-analysis.”).

²²⁰ Email Thread from Reid Nelson to Ulrich Hendel, “RE: UPDP Clarity Weblabs in EU,” February 9, 2021, AMZN-PRM-FTC-000705878–80 at 78 (“Did a quick check and these might have treatments you are also interested in. We did look into benefit usage and CS contacts (using APT) but either didn’t see significant uplifts or only so small that they were no where [sic] near to compensate for the huge changes in signups. Interestingly, some of them even showed negative OPS impact.”).

²²¹ Nelson Deposition, p. 183:11–18 (“Q. ... how were these treatments selected? A. Okay. Based as -- what is shown in the document [Exhibit 22], Ulrich, when he did his analysis, surfaced, presented the experiment treatment within a given experiment that had the highest performance on either CS cancellations that fell into the reason code unintended signup for 2020 experiments and 90-day active signups not using any benefits for 2018 experiments.”), p. 185:2–10 (“The criteria were, in 2018 -- because the CS cancellation metrics were not available for unintended signup reason code, the criteria in 2018 experiments to be listed as the top performer was the impacted 90-day active signups who weren’t using benefits. For 2020 experiments, the metric that was the criteria for selection for top performance was CS cancellations per unintended -- CS cancellations per signup for unintended signup reason codes.”).

²²² Hoffman Opening Report, ¶¶ 320–322.

²²³ “Customer Frustrations Elimination Program: Prime Frustrations,” July 15, 2019, AMZN_00028279–85 at 79.

Exhibit 23 Summary of Treatments and Results for Weblab ‘575

| | UI Design Changes^[1] | Signup Rate | 90 Day Paid Conversion | 90 Day CSC^[2] | Change in CSC/Signup^[3] |
|----|---|--------------------|-------------------------------|---------------------------------|---|
| T1 | Negative CTA (Link) changed to "No Thanks" | ██████ | ██████ | ██████ | ██████ |
| T2 | Negative CTA changed to "No Thanks" and changed to a button | ██████ | ██████ | ██████ | ██████ |
| T3 | Headline updated to include "with Amazon Prime" | ██████ | ██████ | ██████ | ██████ |
| T4 | Prime price and auto renew information prominence increased | ██████ | ██████ | ██████ | ██████ |
| T5 | Combination of all changes from Treatments T1, T3, T4 | ██████ | ██████ | ██████ | ██████ |
| T6 | Combination of all changes from Treatments T2, T3, T4 | ██████ | ██████ | ██████ | ██████ |

Source: "Customer Frustrations Elimination Program: Prime Frustrations," July 15, 2019, AMZN_00028279–85 at 79.

Note:

[1] Call-to-actions ("CTAs") refer to the acceptance and decline options on the UPDP page.

[2] "90 Day CSC" indicates, for each treatment, the change in the number of customer service cancellations in the 90 days after accepting the Prime offer, compared to the control condition.

[3] "Change in CSC/Signup" indicates, for each treatment, the change in the frequency of customer service cancellations (calculated based on the number of effective signups), compared to the control condition.

[4] This value appears as █████ (without the percentage sign) in the source. The other values in the same column are presented as percentages in the source.

78. **Second**, Dr. Violette does not account for methodological limitations that prevent drawing reliable conclusions about the causal impact of clarity from results of the Signup Weblabs. As I explained in the Hoffman Opening Report in relation to Amazon's Clarity Improvement Initiatives,²²⁴ it is not possible to reliably test the impact of changes to the UI design of an interface when multiple design changes are implemented at once in the treatment condition. That is because implementing multiple changes without also testing each change

²²⁴ Hoffman Opening Report, ¶ 339.

separately *and* any interaction between the changes can introduce confounding effects.²²⁵ While this is a basic tenet put forth in the literature on experimental design,²²⁶ Dr. Violette overlooks it and fails to evaluate whether the treatments included in Amazon “meta-analysis” are affected by this issue. Indeed, four out of the six Signup Weblabs that Dr. Violette analyzes involve treatment conditions that include more than one change to the UI design of the UPDP page (relative to the control condition), as shown in Exhibit 24 below.

²²⁵ An experimental design that tests multiple changes in the treatment conditions and also permits the testing of each change individually and each interaction between the changes is known in the literature as a factorial design. *See, e.g.,* Montgomery, D. C. (2012), *Design and Analysis of Experiments*, 8th ed., Hoboken, NJ: John Wiley & Sons, Inc. at p. 5 (“The correct approach to dealing with several factors is to conduct a factorial experiment. This is an experimental strategy in which factors are varied together, instead of one at a time ... This experimental design would enable the experimenter to investigate the individual effects of each factor (or the main effects) and to determine whether the factors interact.”), p. 187 (“Furthermore, a factorial design is necessary when interactions may be present to avoid misleading conclusions.”).

²²⁶ *See, e.g.,* Cook, T. D. and D. T. Campbell (1979), *Quasi-Experimentation: Design & Analysis Issues for Field Settings*, Boston, MA: Houghton Mifflin, pp. 67–68 (“[I]f respondents experience more than one treatment, ... [w]e do not know in such an instance whether we could generalize any findings to the situation where respondents received only a single treatment. More importantly, we would not be able to unconfound the effects of the treatment from the effects of the context of several treatments.”).

Exhibit 24 Four out of Six Signup Weblabs Analyzed by Dr. Violette Include Treatments with Multiple UI Design Changes

| Signup Weblab and Treatment | UI Design Changes | Multiple UI Design Changes |
|------------------------------------|---|-----------------------------------|
| '575 T6 (2018) | <ul style="list-style-type: none"> Added "with Amazon Prime" in header Changed prominence of Prime Price and renewal information Changed decline CTA link to a button Changed text of the decline CTA | Yes |
| '956 T2 (2018) | <ul style="list-style-type: none"> Removed shadow of the acceptance CTA | No |
| '644 T2 (2018) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Changed text of the decline CTA | Yes |
| '734 T1 (2018) | <ul style="list-style-type: none"> Added Prime pricing information above the signup button | No |
| '596 T5 (2020) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Removed shadow of the acceptance CTA Changed decline CTA link to a button Changed the text of the decline CTA | Yes |
| '432 T6 (2020) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Removed shadow of the acceptance CTA Changed decline CTA link to a button Added text below the decline CTA showing shipping price | Yes |

Source: AMZN-PRM-FTC-000367635, AMZN_00028279-85 at 81, 84, AMZN_00047290, AMZN_00047292, AMZN_00047301, AMZN_00047303, AMZN_00047293, AMZN_00047294, AMZN_00046832, AMZN_00046465, AMZN_00046741, AMZN_00046046, Violette Opening Report, ¶ 24.

Note: Call-to-actions ("CTAs") refer to the acceptance and decline options on the UPDP page.

79. The methodological limitations due to the presence of multiple changes can be illustrated in weblab '575 where treatment T6 (the only one Dr. Violette includes in his analysis) combines multiple UI design changes.²²⁷ Specifically, as shown in Exhibit 23 above, treatment T6 combines all the UI design changes included in treatments T2, T3, and T4. Because of the confounding effects of the multiple changes, it is not possible to identify what UI design change

²²⁷ Four of the weblabs included in Dr. Violette's analysis include treatments with multiple UI design changes. I illustrate this issue for one of these studies, weblab '575, which I also reviewed in the Hoffman Opening Report. *See* Hoffman Opening Report, ¶¶ 320, 339.

or changes drive the effect based on an analysis of treatment T6 alone. The results of treatments T2, T3, and T4 from weblab ‘575, could be examined to evaluate the impact of the respective UI design changes, but Dr. Violette does not include those treatments in his analysis.²²⁸ Finally, even if Dr. Violette included the treatments with individual changes in his analysis of the Signup Weblabs, one must use caution when interpreting the results because Amazon did not design the weblab to test all possible interactions between the UI design changes examined.²²⁹

80. Dr. Violette also does not discuss whether, for each weblab, Amazon conducted any systematic preliminary analysis of whether the UI design changes were addressing sources of confusion and reducing potential sources of unintended signups. Nor does he discuss any limitations that would follow from the lack of such systematic preliminary analysis. As I explained in the Hoffman Opening Report, the lack of such systematic preliminary analysis represented a limitation for the interpretation of the results of Amazon’s Clarity Improvement Initiatives. This is because without such preliminary analysis Amazon could not validate whether the UI design elements that were changed represented systematic sources of potential confusion for consumers, nor pinpoint which changes could address the confusion.²³⁰ As I explained in the Hoffman Opening Report, Amazon did *not* conduct such an analysis for weblab ‘575, weblab ‘644, and weblab ‘596.²³¹ Further, Dr. Violette has not demonstrated whether or not this was the case for the remaining three weblabs (weblab ‘956, weblab ‘734, and weblab ‘432).²³²

81. **Third**, because Amazon did not collect metrics about consumers’ cognitive states for the six Signup Weblabs, Dr. Violette’s analysis is necessarily limited to certain behavioral metrics and, as a result, cannot demonstrate that the changes in signups (or other metrics for that matter)

²²⁸ One would also need to examine the results of treatment T1, considering that treatment T2 combines two UI design changes (Negative CTA changed to “No Thanks” and changed to a button), one of which (Negative CTA (Link) changed to “No Thanks”) is examined in treatment T1. See AMZN_00028279-85.

²²⁹ Montgomery, D. C. (2012), *Design and Analysis of Experiments*, 8th ed., Hoboken, NJ: John Wiley & Sons, Inc., p. 5 (“The correct approach to dealing with several factors is to conduct a factorial experiment. This is an experimental strategy in which factors are varied together, instead of one at a time ... This experimental design would enable the experimenter to investigate the individual effects of each factor (or the main effects) and to determine whether the factors interact.”), p. 187 (“Furthermore, a factorial design is necessary when interactions may be present to avoid misleading conclusions.”).

²³⁰ Hoffman Opening Report, ¶¶ 338, 348.

²³¹ Hoffman Opening Report, ¶ 339.

²³² Based on the internal documents I reviewed, Amazon did not conduct any systematic preliminary analyses or tests validating whether the UI design elements examined in the weblabs represented systematic sources of confusion for customers for any of the six Signup Weblabs analyzed by Dr. Violette. See Section V.B.

were due to an improvement in clarity of the UPDP page. The six Signup Weblabs only include behavioral metrics, such as signups, active paid rates, and cancellation rates, but do not include metrics measuring consumers' cognitive states during Amazon's online checkout process or after accepting the Amazon Prime offer within the checkout process. In the Hoffman Opening Report, I explained why the lack of such cognitive metrics was one of the factors that limited Amazon's ability to interpret the results of its Clarity Improvement Initiatives relating to the UPDP page and determine whether any clarity changes improved customer comprehension of Prime material terms.²³³ The same is true for the six Signup Weblabs analyzed by Dr. Violette.

82. **Fourth**, Dr. Violette ignores changes for behavioral metrics included in the Signup Weblabs that are at odds with Amazon's expectations regarding the impact of an improvement in clarity of the UPDP page, as I discussed in the Hoffman Opening Report in relation to Amazon's Clarity Improvement Initiatives.²³⁴ Specifically, Dr. Violette does not discuss the decrease in paid 90-day conversion rates, despite the fact that he reports these changes and examines their statistical significance.²³⁵ As I explained in the Hoffman Opening Report in relation to Amazon's Clarity Improvement initiatives, it is common for companies that interact with consumers online to use such key observable metrics to assess performance for objectives, such as consumer engagement and related business objectives.²³⁶ Here, Amazon expected that if a particular UI design element improved the clarity of the UPDP page, that should result not only in fewer signups (because according to Amazon fewer consumers would sign up by mistake, without any impact on the number of intentional signups) but also in higher conversion rates to paid Prime membership at the end of the free trial period for those customers who did sign up (because according to Amazon consumers intentionally signing up for the free trial would be more likely

²³³ Hoffman Opening Report, ¶ 343 (“Amazon did not employ any mechanism to measure and assess how the behaviors they were observing connected to consumer intent to sign up for Prime and potential confusion due to UI design elements and whether these behaviors could be driven by other or additional factors such as cognitive responses other than potential confusion to UI design element changes.”).

²³⁴ In my Opening Report, I explained that this was also the case for Amazon's Clarity Improvement Initiatives. *See* Hoffman Opening Report, ¶¶ 324–325. Furthermore, Dr. Violette does not examine the benefit usage metrics despite the fact that, in relation to the Signup Weblabs that Violette reviewed and the Clarity Improvement Initiatives that I reviewed in the Hoffman Opening Report, Amazon expected benefit usage to change if clarity of the UPDP page improved. *See* “Measuring the Customer Impact of Prime Clarity,” March 2021, AMZN_00080322–29 at 22 (“The objective of this meta-analysis was to measure the impact that these clarity changes had on customer experience, focusing on CS cancellation metrics, benefit usage, and a longer-term 12-month conversion rate.”).

²³⁵ Violette Opening Report, ¶¶ 25, 44, Table 1.

²³⁶ Hoffman Opening Report, ¶ 334.

to continue to a paid Prime membership and remain Prime members for 90 days or longer).²³⁷ In Exhibit 25 below, I present, for each Signup Weblab, the percentage difference between treatment and control groups for signups as well as for 90-day conversion rates. As shown in the exhibit, while signups are lower for the treatment group for all six Signup Weblabs (with differences that range from [REDACTED] and are all statistically significantly different from zero), conversions are not all higher.²³⁸ In fact, for two of the weblabs, the conversion rates are unchanged as the difference is not statistically significantly different from zero (with the differences ranging from [REDACTED]), and for three of the weblabs the 90-day conversion rate is *lower* for the treatment group, with differences that range from [REDACTED] and are statistically significantly different from zero. Only one of the weblabs has a 90-day conversion rate that is higher for the treatment group than the control group ([REDACTED]) and this difference is statistically significantly different from zero.^{239, 240}

²³⁷ Hoffman Opening Report, ¶ 324.

²³⁸ See Exhibit 25; Violette Opening Report, Table 1.

²³⁹ See Exhibit 25; Violette Opening Report, Table 1.

²⁴⁰ Dr. Violette does not consider the limitations with respect to the measurement of the 12-month conversion rate metrics which, based on Amazon internal documents, would impact the interpretation of these metrics. Documents from Amazon indicate that the 12-month conversion rate metric includes active paid customers who signed up to Prime, then canceled, and later signed up again. This way of calculating the metric can create issues with the interpretation of the metric, because it does not represent the share of Prime members who remained Prime members for 12 consecutive months. See Email Thread from Ulrich Hendel to Benjamin Hills et al., “RE: Signups and 90d/12m Active Customers,” March 14, 2021, AMZN_00014167–72 at 71 (“12m active paid customers measures whether the customer initially signing up for Prime during the weblab has **A** paid subscription 12m later, not **THE** subscription he or she signed up for 12m earlier. Thus, 12m active paid rates can be higher than 90d active paid rates (and are in some instances).”) (emphasis in original).

Exhibit 25 Percent Differences in Signup and 90-Day Conversion Rates between the Treatment and Control Groups for the Six Signup Weblabs Analyzed by Dr. Violette

| Signup Weblab and Treatment | UI Design Changes | Signup Rate | 90-Day Conversion Rate |
|-----------------------------|---|-------------|------------------------|
| '575 T6 (2018) | <ul style="list-style-type: none"> Added "with Amazon Prime" in header Changed prominence of Prime Price and renewal information Changed decline CTA link to a button Changed text of the decline CTA | ██████ | ██████ |
| '956 T2 (2018) | <ul style="list-style-type: none"> Removed shadow of the acceptance CTA | ██████ | ██████ |
| '644 T2 (2018) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Changed text of the decline CTA | ██████ | ██████ |
| '734 T1 (2018) | <ul style="list-style-type: none"> Added Prime pricing information above the signup button | ██████ | ██████ |
| '596 T5 (2020) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Removed shadow of the acceptance CTA Changed decline CTA link to a button Changed the text of the decline CTA | ██████ | ██████ |
| '432 T6 (2020) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Removed shadow of the acceptance CTA Changed decline CTA link to a button Added text below the decline CTA showing shipping price | ██████ | ██████ |

Source: AMZN-PRM-FTC-000367635, AMZN_00028279-85 at 81, 84, AMZN_00047290, AMZN_00047292, AMZN_00047301, AMZN_00047303, AMZN_00047293, AMZN_00047294, AMZN_00046832, AMZN_00046465, AMZN_00046741, AMZN_00046046, Violette Opening Report, ¶ 24.

Note: Call-to-actions ("CTAs") refer to the acceptance and decline options on the UPDP page.

83. In addition, Dr. Violette does not conduct any independent analyses of the behavioral metrics available in the six Signup Weblabs to assess whether the observed results are consistent with his conclusion that purported clarity improvement caused signups to be lower in the treatment group relative to the control group. A closer examination of customer service cancellations ("CSC") for "unintended signups" casts further doubt on the validity of his conclusion. As I explained in the Hoffman Opening Report, Amazon expected that clarity

improvements would result in lower unintended signups.²⁴¹ One implication of Amazon's expectation is that if a treatment improved clarity, then the number of CSC for "unintended signups" relative to the number of CSC for "all reasons" would decrease.²⁴² In other words, the proportion of CSC for "unintended signups" would be expected to be lower for the treatment group than for the control group. Although CSC metrics have limitations (which, incidentally, Dr. Violette overlooks),²⁴³ it is nevertheless instructive to compare the proportion of CSC for "unintended signups" for the treatment group with the same proportion for the control group, conditional on having called in to cancel. The conditional proportion is calculated as the number of CSC for "unintended signups" divided by the number of CSC for "all reasons."²⁴⁴ I compare these pairs of conditional proportions for each of the six Signup Weblabs using a two-proportion

²⁴¹ Hoffman Opening Report, ¶¶ 317, 319.

²⁴² CSC for "unintended signups" measures the number of weblab participants that signed up for Prime and later contacted customer service ("CS") to cancel their membership, where the contact was coded with a reason code that included "unintended signup." CSC for "all reasons" measures the number of weblab participants that signed up for Prime and later contacted CS to cancel, where the contact was coded with any reason code. *See* Defendants Amazon.com, Inc., et al.'s Responses and Objections to Plaintiff Federal Trade Commission's Second Set of Interrogatories, *Federal Trade Commission, v. Amazon.com, Inc., et al.*, United States District Court Western District of Washington at Seattle, Case No. 2:23-cv-0932-JHC (June 3, 2024), p. 12.

²⁴³ Dr. Violette asserts that "[s]ince Amazon routinely collected and analyzed such data in the regular course of its business, consumer actions are likely to be measured consistently over time and are unlikely to contain substantial measurement errors." However, documents from Amazon indicate that CS agents might not accurately collect information about the reason for cancellation. *See* Violette Opening Report, ¶ 37; Email Thread from Nikki Baidwan to Ulrich Hendel et al., "Privileged & Confidential -- Applying the Prime Clarity BI Algorithm to Former Clarity Experiments," April 12, 2021, AMZN_00136674-88 at 84 ("CS agents have also had a historical coding issue because they don't manage to compliance (hence a clean control), and when we did a spot check a while back roughly 20% of cancels did not have cancel intent and they had a tendency to click whatever reason based on muscle memory (e.g. choosing the same reason regardless)."); FTC Matter No. 2123050, Amazon's CID Response to Supplemental Interrogatory Request 6.1, October 7, 2022 ("Although the codes provide directional guidance on the reasons for customer service contacts, not every customer service agent applies them consistently or reliably, so they are not a precise indicator of the content of the contact."). Nevertheless, based on my review of email exchanges between Amazon employees who worked on the "meta-analysis" of the Signup Weblabs, I understand that the metrics that I use as input for my analysis are the result of discussion and review processes aimed to define "valid [and] meaningful" metrics. *See, e.g.*, Email Thread from Reid Nelson to Caroline Moeller, et al., "Re: Privileged & confidential -- Applying the Prime Clarity BI Algorithm to former clarity experiments," January 29, 2021, AMZN_00080811-15 at 12 ("once Ulrich has had a chance to vett [sic] all these, can we please ensure these learnings are incorporated into the CWG document? If the numbers are valid/meaningful, then they provide important learnings on the impact of clarity on customer-centric indicators, and should be presented alongside the business impacts for clarity experiments."). *See also* Email Thread from Ulrich Hendel to Benjamin Hills, et al. "Update on UPDP Weblab meta-analysis," April 3, 2021, AMZN-PRM-FTC-001851339-40 at 39 ("While I was at it, I also improved the overall logic to better account for multiple CS cancellation contacts with different reason codes for one signup, and for customers signing up multiple times on the same subscription ID.").

²⁴⁴ Details about the calculation of the conditional proportion are provided in Exhibit 26 below.

z-test.²⁴⁵ Exhibit 26 shows that for *five* of the weblabs these conditional proportions do not differ significantly from each other.²⁴⁶

²⁴⁵ I conducted the statistical tests using a two-proportion z-test, which is an appropriate test to compare two proportions in two independent groups (e.g., the Amazon customers in the control and in the treatment conditions who signed up to Prime). A z-test is mathematically equivalent to a Chi-squared test with one degree of freedom for comparing two proportions, as in this case. *See* Wallis, S. (2013), “z-squared: The Origin and Application of X^2 ,” *Journal of Quantitative Linguistics*, 20, 4, 350–378 at p. 351 (“The simplest versions of [Chi-squared test] can be shown to be mathematically identical to equivalent z tests ... The standard 2×2 [Chi-squared] test is another way of calculating the z test for two independent proportions taken from the same population.”) (emphasis omitted); Abebe, T. H. (2019), “The Derivation and Choice of Appropriate Test Statistic (Z, t, F and Chi-Square Test) in Research Methodology,” *Mathematics Letters*, 5, 3, 33–40 at p. 34 (“[T]he z-test is used for testing ... [the] difference of two population means if our sample is taken from a normal distribution with known variance or if our sample size is large enough to invoke the Central Limit Theorem (usually $n \geq 30$ is a good rule of thumb).”), pp. 33–37 (“Choosing appropriate statistical test may be depending on the types of data (continuous or categorical), i.e., whether a t-test, z-test, F-test or a chi-square test should be used depend on the nature of data ... The chi-square test of independence is a nonparametric statistical test used for deciding whether two categorical (nominal) variables are associated or independent...”).

²⁴⁶ For weblabs ‘596 and ‘432 the value of the z-statistic is larger than in the other four weblabs, and for weblab ‘432 the z-test indicates that the conditional proportions in the treatment and control group are different from each other. While I do not offer an opinion on what factors may be driving this variation across the results of the weblabs, I observe that the *control* groups for these two weblabs have proportions of CSC for “unintended signups” (0.6% and 0.4%, respectively) that are lower compared to the other four weblabs.

Exhibit 26 Analysis of CS Cancellations Related to Unintended Signups

| Signup Weblab | Signups Count ^[1] | CSC (all reasons) ^[2] | | CSC (unintended signup) ^[3] | | Conditional Proportion ^[4] | z-test ^[5] | |
|---------------|------------------------------|----------------------------------|---------|--|---------|---------------------------------------|-----------------------|---------|
| | | Proportion | (count) | Proportion | (count) | | z-stat | p-value |
| '575 C | ██████ | 9.1% | ██████ | 2.5% | ██████ | 27.9% | 0.625 | 0.532 |
| '575 T6 | ██████ | 7.1% | ██████ | 1.9% | ██████ | 26.6% | | |
| '956 C | ██████ | 9.0% | ██████ | 2.2% | ██████ | 24.5% | 0.074 | 0.941 |
| '956 T2 | ██████ | 8.8% | ██████ | 2.2% | ██████ | 24.4% | | |
| '644 C | ██████ | 9.0% | ██████ | 2.3% | ██████ | 25.6% | 0.110 | 0.912 |
| '644 T2 | ██████ | 5.9% | ██████ | 1.5% | ██████ | 25.4% | | |
| '734 C | ██████ | 4.9% | ██████ | 1.6% | ██████ | 32.8% | -0.104 | 0.917 |
| '734 T1 | ██████ | 4.4% | ██████ | 1.4% | ██████ | 33.0% | | |
| '596 C | ██████ | 4.7% | ██████ | 0.6% | ██████ | 12.7% | 1.310 | 0.190 |
| '596 T5 | ██████ | 3.5% | ██████ | 0.4% | ██████ | 10.6% | | |
| '432 C | ██████ | 4.3% | ██████ | 0.4% | ██████ | 10.4% | 3.210 | 0.001 |
| '432 T6 | ██████ | 3.8% | ██████ | 0.2% | ██████ | 5.8% | | |

Source: AMZN-PRM-FTC-000367635

Note:

[1] Amazon's produced document shows sample size (i.e., triggered CIDs), signup rate, CSC (reason all) proportion and CSC (unintended signup) for each Signup Weblab and for each control and treatment condition included in the "meta-analysis." The signups count is calculated by multiplying the number of triggered CIDs (i.e., sample size of the treatment or control condition) by the signup rate.

[2] The count of the CSC (all reasons) is calculated by multiplying the CSC (reason all) proportion by the signups count.

[3] The count of the CSC (unintended signup) is calculated by multiplying the CSC (unintended signup) proportion by the signups count.

[4] The conditional proportion is calculated by dividing the count of CSC (unintended signup) by the count of CSC (all reasons).

[5] The z-statistic (z-stat) and p-value are calculated using a two-proportion, two-tailed z-test for independent proportions. The null hypothesis of the z-test is that the two proportions in the control and treatment conditions are equal.

84. **Fifth**, Dr. Violette does not consider additional or alternative factors that can impact the Signup Weblabs independent of any purported improvements in the clarity of the UPDP page. In the Hoffman Opening Report, I described potential factors, such as "processing fluency," "persuasiveness," and the presence of different consumer types, which could lead to a decrease

in signups even without any impact on the clarity of the UI.²⁴⁷ The same factors can potentially explain the results observed for the six Signup Weblabs.

85. “Processing fluency” could explain one potential cognitive response of consumers (or some subset of consumers) to the design changes. As I explained in the Hoffman Opening Report, processing fluency refers to a consumer’s subjective experience of how easy or difficult it is to complete a mental task and can have a significant impact on a consumer’s judgment and decision-making process.²⁴⁸ To the extent the treatments reduced the processing fluency (i.e., the ease of processing) of the treatments compared to the controls (something that Dr. Violette cannot exclude based on his analysis), consumers might have experienced increased perceived difficulty in navigation, reduced trust, longer decision making times, and lower likelihood of achieving their objectives, and as a result, they might not sign up for Prime.

86. The design changes implemented by Amazon in the treatment groups could have reduced the “persuasiveness” of the free trial offer on the UPDP page for some groups of consumers.²⁴⁹ As I explained in the Hoffman Opening Report, consumers tend to interpret pages within a flow based on (i) the context of the surrounding information on the page, (ii) other information the consumer has been exposed to, including in earlier steps in the flow, (iii) prior knowledge (if any) the consumer possesses about the Prime program even before they start the flow, as well as (iv) likely familiarity with UI design elements commonly used by websites other than Amazon for their checkout processes and paid digital membership/subscription programs.²⁵⁰ Depending on how consumers are influenced by each of these factors (something that Dr. Violette does not and cannot assess with his statistical analysis), their reaction to the information may differ, including whether or not they become more or less persuaded by the offer, and as a result, they might not sign up to Prime.

87. Dr. Violette also does not consider that different groups of Amazon consumers could have different reactions to the information presented in the test and control versions of the UPDP page used for the Signup Weblabs. For example, as I discussed in the Hoffman Opening Report

²⁴⁷ Hoffman Opening Report, ¶¶ 345–346.

²⁴⁸ Hoffman Opening Report, ¶ 345.

²⁴⁹ Hoffman Opening Report, ¶ 346.

²⁵⁰ Hoffman Opening Report, ¶¶ 268, 346.

with respect to Amazon's Clarity Improvement Initiatives,²⁵¹ one might consider three types of consumers who were exposed to the treatments in those tests: (i) consumers who intended to sign up and keep the membership after the end of the free trial, (ii) consumers who intended to sign up for the free trial and intended to cancel before the end of the free trial, and (iii) consumers who signed up by mistake for the free trial. Amazon's assumption was that the changes implemented would only impact the consumers in the third group, those who signed up by mistake, and reduce their number. However, to the extent the changes had an unexpected impact on how persuasive the UPDP page offer was for the other two groups of consumers, the number of signups and observable consumer behavior could change in ways that are at odds with Amazon's hypotheses (e.g., lowering both signups *and* the conversion rate to paid membership).²⁵² Such consumer heterogeneity could help interpret the results of the Signup Weblabs, which as discussed above resulted in both decreases in signups and increases in conversion rates in only three cases. For two of the remaining weblabs, conversions did not change, and for one they *decreased*.²⁵³ Dr. Violette, however, does not consider how this heterogeneity would affect the impact of the Signup Weblabs on the metrics he analyzes, and he does not consider how the interpretation of the results could depend on this factor.

B. The Additional "Amazon's Signup Weblabs" Reviewed by Dr. Violette Have the Same Methodological Limitations of the Weblabs I Reviewed in the Hoffman Opening Report

88. In the Hoffman Opening Report, I reviewed Amazon's Clarity Improvement Initiatives from 2018 and 2020.²⁵⁴ Dr. Violette's analysis includes six Signup Weblabs, that partially overlap with the Clarity Improvement Initiatives that I reviewed and discussed in the Hoffman Opening Report. Specifically, in the Hoffman Opening Report I reviewed three of the Signup Weblabs included in Dr. Violette's analysis: weblab '575, weblab '644, and weblab '596.²⁵⁵ I

²⁵¹ Hoffman Opening Report, ¶ 347.

²⁵² Hoffman Opening Report, ¶ 347.

²⁵³ See Exhibit 25 above.

²⁵⁴ Hoffman Opening Report, Section X.A.

²⁵⁵ Violette Opening Report, Table 1. See also Hoffman Opening Report, Section X.A.

have now reviewed the additional three Signup Weblabs analyzed by Dr. Violette: weblab '956,²⁵⁶ weblab '734,²⁵⁷ and weblab '432.²⁵⁸

89. The three additional Signup Weblabs analyzed by Dr. Violette introduced changes to the UPDP page UI design that removed the shadow of the acceptance call-to-action ("CTA"), added Prime pricing information above the signup button, and changed the text and look of both CTAs, as summarized in Exhibit 27 below.

Exhibit 27 Additional Signup Weblabs Analyzed by Dr. Violette

| Signup Weblab | UI Design Changes | Country | Device |
|----------------|---|---------|---------|
| '956 T2 (2018) | <ul style="list-style-type: none"> Removed shadow of the acceptance CTA | USA | Desktop |
| '734 T1 (2018) | <ul style="list-style-type: none"> Added Prime pricing information above the signup button | Canada | Desktop |
| '432 T6 (2020) | <ul style="list-style-type: none"> Changed text of the acceptance CTA Removed shadow of the acceptance CTA Changed decline CTA link to a button Added text below the decline CTA showing shipping price | USA | Mobile |

Source: AMZN-PRM-FTC-000367635, AMZN_00047290, AMZN_00047292, AMZN_00047293, AMZN_00047294, AMZN_00046741, AMZN_00046046, Violette Opening Report, ¶ 24.

Note: Call-to-actions ("CTAs") refer to the acceptance and decline options on the UPDP page.

90. Based on my review of the Signup Weblabs analyzed by Dr. Violette and the documents cited by Dr. Violette in his Opening Report, the opinion that I presented in the Hoffman Opening Report does not change.²⁵⁹ Weblab '956, weblab '734, and weblab '432 discussed in the Violette Opening Report (listed in Exhibit 27) have methodological limitations that limited Amazon's

²⁵⁶ "PRIME_153956: US Desktop UPDP FT Monthly - CIA Shadow/No Shadow," undated, AMZN-PRM-FTC-002650117-33; AMZN_00047291; AMZN_00047292.

²⁵⁷ "PRIME_179734: FT UPDP Price Prominence," undated, AMZN-PRM-FTC-002650208-23; AMZN_00047293; AMZN_00047294.

²⁵⁸ "PRIME_255432: UPDP Mobile FT Clarity CTA's," undated, AMZN-PRM-FTC-002650314-31; AMZN_00046741; AMZN_00046046.

²⁵⁹ Hoffman Opening Report, ¶ 348.

ability to interpret the results.²⁶⁰ First, Amazon conducted the tests without systematically validating whether the elements that were altered were indeed systematic sources of confusion for consumers.²⁶¹ Second, Amazon collected and analyzed only behavioral metrics, and did not measure consumers' cognitive states, which would have been relevant for assessing the impact of the changes on clarity.²⁶² Third, Amazon had no means of determining whether the observed changes in metrics were driven by additional factors other than changes in confusion.

Executed this 26 of March, 2025



Donna L. Hoffman

²⁶⁰ “Measuring the Customer Impact of Prime Clarity,” March 2021, AMZN_00080322–29; “PRIME_153956: US Desktop UPDP FT Monthly - CIA Shadow/No Shadow,” undated, AMZN-PRM-FTC-002650117–33; “PRIME_179734: FT UPDP Price Prominence,” undated, AMZN-PRM-FTC-002650208–23; “PRIME_255432: UPDP Mobile FT Clarity CTA’s,” undated, AMZN-PRM-FTC-002650314–31.

²⁶¹ Based on the internal documents I reviewed, Amazon did not conduct any systematic preliminary analyses or tests validating what elements were systematic sources of confusion for customers for any of the six Signup Weblabs analyzed by Dr. Violette. According to Amazon’s CID response and produced documents, from September 2020 onwards “Amazon began soliciting user input to inform its understanding of issues that are important to its customers, in part, to inform its content experiments” and that these customer experience test typically had between 5 and 12 participants. *See* FTC Matter No. 2123050, Amazon’s Fourth CID Response, June 21, 2021, p. 2; FTCAMZN_0016438.

²⁶² “Measuring the Customer Impact of Prime Clarity,” March 2021, AMZN_00080322–29 at 22 (“The objective of this meta-analysis was to measure the impact that these clarity changes had on customer experience, focusing on CS cancellation metrics, benefit usage, and a longer-term 12-month conversion rate.”).

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Donna L. Hoffman

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Education

Ph.D., L.L. Thurstone Psychometric Laboratory, University of North Carolina, Chapel Hill, NC, 1984. (Quantitative Psychology with Formal Minor in Marketing from Graduate School of Business Administration.)

M.A., L.L. Thurstone Psychometric Laboratory, University of North Carolina, Chapel Hill, NC, 1980. (Quantitative Psychology.)

A.B., University of California, Davis, California, 1978. (Psychology.)

Academic Appointments

The George Washington University, July 1, 2013-present

Louis Rosenfeld Distinguished Scholar and Professor of Marketing
Co-Director, Center for the Connected Consumer

University of California, Riverside, 2006-2013

Albert O. Steffey Chair of Marketing (2011-2013); Chancellor's Chair (2006-2011)
Co-Director, UCR Sloan Center for Internet Retailing
Department Chair, Management and Marketing (2006-2011)
Cooperating Faculty, Department of Psychology (2007-2013)

Vanderbilt University

Professor of Marketing, 2000-2006.
Co-Director, Vanderbilt University Sloan Center for Internet Retailing, 2003-2006
Co-Founder & Co-Director, *eLab* Research Laboratory, 1994-2006.
Director, Electronic Commerce Concentration 1999-2006.
Marketing Area Head, 2002-2003, 2005-2006
Associate Professor of Marketing, 1993-2000.
Founder & Director, Electronic Commerce Emphasis at Owen, 1995-1999. (Emphasis converted to formal concentration in 1999).

University of Texas (Dallas)

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Associate Professor, 1991-1993.

Columbia University

Associate Professor, Graduate School of Business, 1987-1990.

Assistant Professor, Graduate School of Business, 1984-1987.

Associate in Business, Graduate School of Business, 1983-1984.

Visiting Scholar Appointments

University of Hong Kong (HKU), January 12-29, 2019

Visiting Scholar, Faculty of Business and Economics, Department of Marketing

University of California, San Diego, Fall 2013, Spring 2018

Visiting Scholar, Rady School of Management

University of Southern California, Fall 2010

Visiting Scholar, Marshall School of Business

Stanford University

Visiting Scholar, Center for Electronic Business and Commerce (Summer 2000)

Visiting Scholar, Department of Marketing (Summer 1997)

UCLA

Visiting Associate Professor, Anderson Graduate School of Management (Summer 1989)

Professional Experience

Interval Research Corporation, Palo Alto, CA, 1995-1999

Visiting Scholar (summer)

Research Triangle Institute, N.C., 1980-1981

Social Science Analyst

Special Appointments

President's Information Technology Advisory Committee (PITAC), Socio-Economic and Workforce Panel, 1998.

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Donna L. Hoffman

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Academic Honors and Awards

- 2021 Best Article Award, *Journal of Consumer Research*. Awarded for Hoffman and Novak (2018), "Consumer and Object Experience in the Internet of Things: An Assemblage Theory Approach," (Volume 44) April 2018.
- 2021 GWSB Dean's Awards for Excellence: Senior Faculty Research Award
- 2020 Finalist for Academy of Marketing Science Best *JAMS Article Award* Published in 2019
- 2019 Winner of the Lazaridis Prize for the Best Paper on the Practice of Marketing as it relates to Innovation, Technology, and Interactivity, awarded by the American Marketing Association (AMA) TechSIG
- 2019 *Journal of Consumer Research* Best Reviewer Award
- 2019 Society for Consumer Psychology Fellow
- 2012 University of Pennsylvania Future of Advertising Center/Wharton Customer Analytics Initiative "Innovative Approaches to Measuring Advertising Effectiveness" Winner for proposal "Crowdsourcing Ad Effectiveness: Can Emergent Segments Produce the Most Effective Online Ads? (\$7,500)
- 2012 MSI Ideas Challenge Winner for proposal "Idea Wars: Developing a Collaborative Research Agenda for the Gamification of Marketing" (\$10,000)
- 2012 Finalist, Paul. D. Converse Award for Outstanding Contributions to the Science of Marketing
- 2011 National Science Foundation Grant # IIS-1114828, "Motivations, Expectations and Goal Pursuit in Social Media," PI (\$413,756 for two years)
- 2011 Robert B. Clarke Outstanding Educator of the Year Award (Direct Marketing Educational Foundation)
- 2011 Marketing Science Institute "Challenges of Communications and Branding in a Digital Era" research proposal competition winner (\$8,750)
- 2011 Robert D. Buzzell MSI Best Paper Award Honorable Mention for "The 'Right' Consumers for the Best Concepts: Identifying and Using Emergent Consumers in Developing New Products" (Hoffman, Kopalle and Novak)
- 2009 Thomson Reuters' Essential Science Indicators cited Professors Donna Hoffman and Tom Novak's *Journal of Interactive Marketing* (2009) article as a "Fast Breaking Paper" (one of the most cited in the past two years) in the entire field of Economics and Business, November 2009.
- 2009 Google/WPP Marketing Research Award (First Round Inaugural Year), "Are Brand Attitudes Contagious?" \$55,000, with Tom Novak
- 2008 Marketing Science Institute Research Grant Award, The "Right" Consumers for the Best Concepts: A Methodology for Identifying Emergent Consumers for New Product Development, \$6,750, with Tom Novak and Praveen Kopalle.
- 2008 National Science Foundation, Global Environment for Network Innovations (GENI) End-User Opt-In Initiative

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- 2007 Alfred P. Sloan Foundation Research Networking Workshop Grant Award (\$15,000)
- 2007 National Retail Federation Ray M. Greenly Shop.org Scholarship (\$2500) to the UCR Sloan Center for Internet Retailing – awarded to Hector Rosales, UCR undergraduate
- 2005 Sheth Foundation/Journal of Marketing Award for long-term contributions to marketing for the article “Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations, published in the *Journal of Marketing* (1996).
- 2005 Stellner Distinguished Scholar for 2005-2006, University of Illinois at Urbana-Champaign.
- 2004 Member of marketing department ranked #2 in research impact per faculty member (based on median citation rates) among the top 46 business schools in the United States.
- 2003 ISI Essential Science Indicators cited Professors Donna Hoffman and Tom Novak’s *Marketing Science* (2000) article as “Emerging Research Front” in the entire field of Economics and Business, December 2003.
- 2003 ISI Essential Science Indicators cited Professors Donna Hoffman and Tom Novak for the highest percentage increase in total citations in the entire field of Economics and Business, July 2003.
- 2003 AACSB International Effective Practice: eLab
- 2002 University of North Carolina Distinguished Graduate Alumni
http://gradschool.unc.edu/centennial/distinguished_graduate.html
- 1999 With Professor Tom Novak, voted as one of the top two Internet scientists by over 600 U.S. and European scientists and marketing managers in a survey conducted by the ProfNet Institute for Internet Marketing in Dortmund, Germany.
- 1999 EDSF Excellence in Education Award for Innovation in Higher Education (sponsored by Xerox).
- 1997 EFF (Electronic Frontier Foundation) Honorary Fellow.
- 1996 TLA/SIRS Freedom of Information Award.
- 1991 William O'Dell Award for "Correspondence Analysis: The Graphical Representation of Categorical Data in Marketing Research," *Journal of Marketing Research*, 1986.
- 1991 American Marketing Association Second Annual Advanced Research Techniques Forum Best Paper Award and Best Presentation Award for "Asymmetric Residual Maps for Market Structure Analysis."

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Research Interests

- Consumer experience of AI using assemblage theory and object-oriented ontology perspectives
- Impact of anthropomorphism on AI perceptions and downstream consequences
- Computational approaches (machine learning and NLP methods) for understanding consumer-smart object experience from IoT interaction data
- Self-extension and self-expansion theories of consumers' relationships with AI
- Online consumer behavior and digital marketing strategy

Research Impact

42,191 citations in [Google Scholar](#) (as of March 2025):

- 1 article with 10,000+ citations
- 2 articles with 5,000+ citations
- 9 articles with 1,000+ citations
- 16 articles with 500+ citations
- 40 articles with 100+ citations

- h-index=48; i10-index=86

The 1996 *Journal of Marketing* article on marketing in computer-mediated environments is the most widely cited *Journal of Marketing* article from 1995-2007 and the #1 most cited paper in the entire marketing discipline between 1990-2002 (Stremersch, Verniers and Verhoef 2007).

The 2000 *Marketing Science* article on online customer experience is one of the “all time most highly cited articles” and the top article in terms of “all time citations per year” in *Marketing Science* (Shugan 2008), as well as the 14th most cited paper in the entire marketing discipline between 1990-2002 (Stremersch, Verniers and Verhoef 2007).

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Journal Publications

1. Hoffman, D.L. and T.P. Novak, (in press) "The Evolving Consumer IoT: A Novel Framework for Marketing Strategy Based on Assemblage Theory," *Journal of Product Innovation Management*, Thought Leader Special Issue.
2. Valenzuela, Ana, Stefano, Puntoni, Donna L. Hoffman, Noah Costelo, Julian De Freitas, Berkeley Dietvorst, Christian Hildebrand, Young Eun Huh, Robert Meyer, Miriam E. Sweeney, Sanaz Talaifar, Geoff Tomaino, and Klaus Wertenbroch (2024), "How Artificial Intelligence Constrains the Human Experience," *Journal of the Association for Consumer Research*, Special Issue on Automation in Marketing and Consumption, July, 9(3), 241-256.
3. Novak, T.P. and Hoffman, D.L. (2024), "Exploration and Exploitation in Consumer Automation: Visualizing IoT Interactions with Topological Data Analysis," *Journal of the Association for Consumer Research*, Special Issue on Automation in Marketing and Consumption, July, 9(3), 282-294.
4. Novak, T.P. and D.L. Hoffman (2023), "Automation Assemblages in the Internet of Things: Discovering Qualitative Practices at the Boundaries of Quantitative Change," *Journal of Consumer Research*, 49(5), 811-837. Published Online April 7, 2022.
5. Hildebrand, C., F. Efthymiou, B. Francesc, W.H. Hampton, D.L. Hoffman and T.P. Novak (2020), "Voice Analytics in Business Research: Conceptual Foundations, Acoustic Feature Extraction, and Applications," *Journal of Business Research*, 121 (December), 364-374.
6. MacInnis, Deborah J., Vicki G. Mortwitz, Simona Botti, Donna L. Hoffman, Robert V. Kozinets, Donald R. Lehmann, John G. Lynch, Jr., Cornelia Pechmann (2020), "Creating Boundary-Breaking Marketing-Relevant Consumer Research," *Journal of Marketing*, 84(2), 1-23.
Finalist, 2025 AMA Sheth Foundation/Journal of Marketing Award for long-term contributions to the marketing discipline
7. Novak, T.P. and D.L. Hoffman, (2019), "Relationship Journeys in the Internet of Things: A New Framework for Understanding Interactions Between Consumers and Smart Objects," *Journal of the Academy of Marketing Science*, special issue on Consumer Journeys: Developing Consumer-Based Strategy, 47(2), 216-237.
Finalist for Academy of Marketing Science Best JAMS Article Award published in 2019

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8. Hoffman, D.L. and T.P. Novak (2018), "The Path of Emergence Experience in the Consumer IoT: From Early Adoption to Radical Changes in Consumers' Lives," *Marketing Intelligence Review: IoT Experiences*, 10(2), 10-17.
9. Hoffman, D.L. and T.P. Novak (2018), "Consumer and Object Experience in the Internet of Things: An Assemblage Theory Approach," *Journal of Consumer Research*, 44(6), April, 1178-1204. **Lead article.**

Winner of the 2021 *Journal of Consumer Research* Best Article Award.

Winner of the 2019 Lazaridis Prize for the Best Paper on the Practice of Marketing as it relates to Innovation, Technology and Interactivity, awarded by the American Marketing Association (AMA) TechSIG.

10. Verhoef, P., Stephen, A., Kannan, P.K., Luo, X., Abhishek, V., Andrews, M., Bart, Y., Datta, H., Fong, N., Hoffman, D., Hu, M., Novak, T., Rand, W., and Zhang, Y. (2017), "Consumer Connectivity in a Complex, Technology-Enabled, and Mobile-Oriented World with Smart Products," *Journal of Interactive Marketing*, 40 (November), 1-8.
11. Hoffman, D.L., T.P. Novak and H. Kang, (2017), "Let's Get Closer: How Regulatory Fit Drives Feelings of Connectedness in Social Media," *Journal of the Association for Consumer Research*, issue on "The Consumer in a Connected World," 2(2).
12. White, T., T. P. Novak and D. L. Hoffman (2014), "No Strings Attached: When Giving It Away Versus Making Them Pay Leads to Negative Net Benefit Perceptions in Consumer-Retailer Exchanges," *Journal of Interactive Marketing*, 28 (August), 184-195.
13. Yadav, Manjit S, Kristine De Valck, Thorsten Hennig-Thurau, D.L. Hoffman and Martin Spann (2013), "Social Commerce: A Contingency Framework for Assessing Marketing Potential," *Journal of Interactive Marketing*, 27 (November), 311-323.
14. Hoffman, D.L. and T.P. Novak (2012), "Toward a Deeper Understanding of Social Media," *Journal of Interactive Marketing*. (Editorial, Co-Editor, Special Issue on "Social Media"), 26(May), 69-70.
15. Hoffman, D. L. (2011), "Web 2.0 for B2Bs: Strategic Brief," *European Business Review*, November-December, 72-73.
16. Hoffman, D.L. and Novak. T.P (2011), "Marketing Communication in a Digital Era," *Marketing Management*, Fall, 20(3), 37-42, American Marketing Association. **Cover article.** (Invited article to commemorate the 50th Anniversary of the Marketing Science Institute.)

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17. Hoffman, D.L. and M. Fodor (2010), "Can You Measure the ROI of Your Social Media Marketing?" *Sloan Management Review*, 52(1), Fall, 41-49.
18. Hoffman, D., Kopalle, P., Novak, T. (2010) The "Right" Consumers for Better Concepts: Identifying Consumers High in Emergent Nature to Develop New Product Concepts," *Journal of Marketing Research*, 47 (October).
Honorable Mention: 2011 Robert D. Buzzell MSI Best Paper Award for significant contribution to marketing practice and thought.
19. Hoffman, D.L. (2009), "Managing Beyond Web 2.0," *McKinsey Quarterly*, July.
20. Hoffman, D.L., Novak, T.P. (2009), "Flow Online: Lessons Learned and Future Prospects," *Journal of Interactive Marketing*, 23(1), February, Anniversary Issue, 23-34.
Most cited article during the period 2007-2011.
21. Novak, T.P., Hoffman, D.L. (2009), "The Fit of Thinking Style and Situation: New Measures of Situation-Specific Experiential and Rational Cognition," *Journal of Consumer Research*, 36(1), December, 56-72.
22. Neslin, S., Novak, T., Baker, K., Hoffman, D. (2009), "An Optimal Contact Model for Maximizing Online Panel Response Rates," *Management Science*, 55(5), May, 727-737.
23. Hoffman, Donna L., Thomas P. Novak, and Alladi Venkatesh (2004), "Has the Internet Become Indispensable?" *Communications of the ACM*, 47(7), July, 37-42.
24. Hoffman, Donna and Thomas P. Novak (2005), "A Conceptual Framework for Considering Web-Based Business Models and Potential Revenue Streams" *International Journal of Marketing Education*, 1(1).
25. Chatterjee, P., D.L. Hoffman and T.P. Novak (2003), "Modeling the Clickstream: Implications for Web-Based Advertising Efforts," *Marketing Science*, 22(4), 520-541.
26. Hoffman, Donna L., Thomas P. Novak and Ann Schlosser (2003), "Consumer Attitudes Toward Software Filters and Online Content Ratings: A Policy Analysis," *Journal of Public Policy and Marketing*, 22(1), 41-57.
27. Novak, Thomas P., Donna L. Hoffman, and Adam Duhachek (2003) "The Influence of Goal-Directed and Experiential Activities on Online Flow Activities," *Journal of Consumer Psychology*, 13(1&2), 3-16. **Lead article.**

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28. Straub, Detmar, Donna L. Hoffman, Bruce Weber and Charles Steinfield (2002), "Toward New Metrics for Net-Enhanced Organizations," *Information Systems Research*, 13(3), September. (Editorial)
29. Straub, Detmar, Donna L. Hoffman, Bruce Weber, and Charles Steinfield (2002), "Measuring e-Commerce in Net-Enabled Organizations," *Information Systems Research*, 13 (2), June. (Editorial)
30. Hoffman, D. L. (2000), "The Revolution Will Not Be Televised," Editorial, *Marketing Science*, Winter, 19(1), 1-3. (Editorial)
31. Hoffman, D.L. and T.P. Novak (2000), "How to Acquire Customers on the Web," May/June, *Harvard Business Review*, 179-188.
32. Hoffman, D.L., T.P. Novak and A. Schlosser (2000), "The Evolution of the Digital Divide: How Gaps in Internet Access May Impact Electronic Commerce," *Journal of Computer-Mediated Communication*, 5(3), <http://www.ascusc.org/jcmc/vol5/issue3/hoffman.html>.
Reprinted in: Hoffman, D.L., T.P. Novak and A. Schlosser (2003), "The Evolution of the Digital Divide: How Gaps in Internet Access May Impact Electronic Commerce," *New Directions in Research on E-Commerce*, Charles Steinfield, Editor, 245-292, Purdue University Press.
33. Novak, T.P., D.L. Hoffman, and Y.F. Yung (2000), "Measuring the Customer Experience in Online Environments: A Structural Modeling Approach," *Marketing Science*, Winter, 19(1), 22-44.
34. Hoffman, D.L., T.P. Novak, and M.A. Peralta (1999), "Building Consumer Trust Online," April, *Communications of the ACM*, Volume 42, Number 4, April, 80-85.
35. Hoffman, D.L, T.P. Novak, and M.A. Peralta (1999), "Information Privacy in the Marketspace: Implications for the Commercial Uses of Anonymity on the Web," *The Information Society*, Volume 15, Number 2, April-June, 129-140.
36. Hoffman, D.L. and T.P. Novak (1998), "Division on the Internet?" *Science*, 281 (August 14), 919d (response to letters regarding "Bridging the Racial Divide on the Internet").
37. Hoffman, D.L. and T.P. Novak (1998), "Bridging the Racial Divide on the Internet," *Science*, Volume 280, 390-391, April 17.

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38. Novak, T.P. and D.L. Hoffman (1997), "New Metrics for New Media: Toward the Development of Web Measurement Standards," *World Wide Web Journal*, Winter, 2(1), 213-246. Russian translation reprinted as a chapter in *Research on the Internet, Humanitarian and Social Aspects*, A. Voiskounsky, ed.
39. Hoffman, D.L. and T.P. Novak (1997), "A New Marketing Paradigm for Electronic Commerce," *The Information Society*, Special Issue on Electronic Commerce, 13 (Jan-Mar.), 43-54. German translation reprinted in *THEXIS*, special issue on "Online Marketing," (1997), Jan., 39-43.
40. Hoffman, D.L., W.D. Kalsbeek and T.P. Novak (1996), "Internet and Web Use in the United States: Baselines for Commercial Development," Special Section on "Internet in the Home," *Communications of the ACM*, 39 (December), 36-46.
41. Hoffman, D.L. and T.P. Novak (1996), "Perspectives: The Future of Interactive Marketing," *Harvard Business Review*, 74 (November-December), 161.
42. Hoffman, D.L. and T.P. Novak (1996), "Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations," *Journal of Marketing*, 60 (July), 50-68. Reprinted in: *Marketing Communication Classics*, (2000), Maureen FitzGerald and David Arnott, eds. London: Business Press, pp. 261-290.
Winner of the 2005 AMA Sheth Foundation/Journal of Marketing Award for long-term contributions to the marketing discipline.
43. Hoffman, D.L., T.P. Novak, and P. Chatterjee. (1995), "Commercial Scenarios for the Web: Opportunities and Challenges," *Journal of Computer-Mediated Communication*, Special Issue on Electronic Commerce, 1(3). **Lead article.**
Reprinted in: *Electronic Commerce: Profiting from Business On-line*, (1996) Layna Fischer, ed., Lighthouse Point FL: Future Strategies Inc., Book Division, pp. 107-136.
Reprinted in: *Readings in Electronic Commerce* (1996), Ravi Kalakota and Andrew Whinston, eds., Reading, MA: Addison-Wesley, pp. 29-53. Reprinted in: *Web Marketing Insider* (1996). [www.ideacentral.com/wmi/hoffman1.html]
44. Hoffman, D.L. & Holbrook, M.J. (1993) The Intellectual Structure of Consumer Research: A Bibliometric Study of Author Co-Citations in the First 15 Years of *JCR*. *Journal of Consumer Research*, 19(4), March, 505-517.
45. Hoffman, D.L. & de Leeuw, J. (1992) Interpreting Multiple Correspondence Analysis as an MDS Method. *Marketing Letters*, 3(3).

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46. Kopalle, P. & Hoffman, D.L. (1992) Generalizing the Sensitivity Conditions in an Overall Index of Product Quality. *Journal of Consumer Research*, 18 (4), March, 530-535.
47. Hoffman, D.L. & Batra, R. (1991) Viewer Response to Programs: Dimensionality and Concurrent Behavior. *Journal of Advertising Research*, (August-September), 31(4), 46-56.
48. Novak, T.P & Hoffman, D.L. (1990). Residual scaling: An alternative to correspondence analysis for the graphical representation of residuals from log-linear models. *Multivariate Behavioral Research*, 25(July), 351-370.
49. Hoffman, D.L. & Novak, T.P. (1988). A short SAS macro for performing the basic equations of correspondence analysis. *TRAC*, 7(3), *Computer Corner*, 93-94.
50. DeSarbo, W. & Hoffman, D.L. (1987). Constructing MDS Joint Spaces from Binary Choice Data: A New Multidimensional Unfolding Model for Marketing Research. *Journal of Marketing Research*, 24 (February), 40-54.
51. Hoffman, D.L. & Franke, G. (1986). Correspondence Analysis: The Graphical Representation of Categorical Data in Marketing Research. *Journal of Marketing Research*, 23 (August), 213-227. Reprinted in *Multidimensional Scaling: Concepts and Applications*, P. Green, F. Carmone and S. Smith (Eds.), Allyn and Bacon, Inc. (1993)
Winner of the 1991 William O'Dell Award for long-run contributions to marketing.
52. DeSarbo, W. & Hoffman, D.L. (1986). Simple and Weighted Multidimensional Unfolding Threshold Models for the Spatial Representation of Binary Choice Data. *Applied Psychological Measurement*, 10(3), 247-264.
53. Hoffman, D.L. (1985). An argument for qualitative ratings. *Television Quarterly*, 21(4), 39-44.

Papers Under Review and in Preparation for Submission

54. Hildebrand, C., D.L. Hoffman, and T.P. Novak, "Your Request is My Command! How Initiation Modalities Shape Conversational AI Experiences," 2nd round review at the *Journal of Consumer Research*.
55. Hoffman, D.L. and T.P. Novak, "Human-Centric versus Object-Oriented Perspectives on Perceptions of AI," target: *Journal of Marketing*.

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56. Novak, T.P. and D.L. Hoffman, *"Enabling and Constraining Experiences: Theory, Measurement, and Application,"* two studies completed, target: *Journal of Consumer Research*.

Working Papers and Monographs

1. Hoffman, D.L. and T.P. Novak (2016), "How to Market the Smart Home: Focus on Emergent Experience, Not Use Cases," January 15. Working paper available at: <https://ssrn.com/abstract=2840976>.
2. Hoffman, D.L. and T.P. Novak, (2015), "Emergent Experience and the Connected Consumer in the Smart Home Assemblage and the Internet of Things," August 20. Monograph. 152 pages. Available at SSRN: <http://ssrn.com/abstract=2648786>
3. Hoffman, D.L. and T.P. Novak (2014), "Online Experience in Social Media: Two Paths to Feeling Close and Connected," working paper available at: <https://ssrn.com/abstract=1990005>.
4. Hoffman, D.L. and T.P. Novak (2012), "Why Do People Use Social Media? Empirical Findings and a New Theoretical Framework for Social Media Goal Pursuit," working paper available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1989586

Edited Books

Hoffman, D.L. And T.P. Novak, Eds. (2005), *Beyond the Basics: Research-Based Rules for Internet Retailing Advantage*. eLab Press, Vanderbilt University.

Refereed Chapters in Books

1. Hoffman, D.L., T.P. Novak, and Y. Li (2015), "Online Consumer Behavior," In Mansell, R. and Ang, P-H (Eds), *The International Encyclopedia of Digital Communication and Society*, Wiley-Blackwell-ICA Encyclopedias of Communication. Malden and Oxford: Wiley.
2. Hoffman, D. L., T.P. Novak and R. Stein (2013), "The Digital Consumer," chapter in *The Routledge Companion to Digital Consumption*, Eds., Russell Belk and Rosa Llamas, Routledge, Taylor And Francis Group.
3. Hoffman, D.L. and T.P. Novak (2012), "Social Media Strategy," in *Handbook on Marketing Strategy*, eds., Venkatesh Shankar and Gregory S. Carpenter, Edward Elgar Publishing, Ltd., 198-216.

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4. Hoffman, D.L. (2012), "Internet Indispensability, Online Social Capital, and Consumer Well-Being," Chapter to appear in *Transformative Consumer Research for Personal and Collective Well Being* in the section "Technological Fronts," eds., David Glen Mick, Simone Pettigrew, Cornelia Pechmann, and Julie L. Ozanne, New York: Routledge.
5. Hoffman, D.L. and T.P. Novak (2003), 'A Detailed Analysis of the Conceptual, Logical and Methodological Flaws in the Article: "Marketing Pornography on the Information Superhighway," in *Cyberspace Crime*, D.S. Wall, ed., Ashgate Publishing Limited.
6. Hoffman, D.L. and T.P. Novak (2000), "The Growing Digital Divide: Implications for an Open Research Agenda," in "Understanding the Digital Economy: Data, Tools and Research," B. Kahin and E. Brynjolfsson, eds. Cambridge: MIT Press. (editorial review)
7. Novak, T.P. and D.L. Hoffman (2000) "Advertising and Pricing Models for the Web," in *Internet Publishing and Beyond: The Economics of Digital Information and Intellectual Property*, Brian Kahin and Hal Varian, eds. Cambridge: MIT Press. (editorial review)
8. Novak, T.P., D.L. Hoffman, and A. Venkatesh (1998), "Diversity On The Internet: The Relationship Of Race To Access And Usage," In *Investing in Diversity: Advancing Opportunities for Minorities and the Media*, Amy Garmer, Ed. Washington, D.C., The Aspen Institute.
9. Hoffman, D.L. & Steenkamp, J.B. (1994). "Marketing and Quality," chapter 31 (Noel Capon, ed. Marketing Section). In *AMA Management Handbook, Third Edition*, Rod Willis (Ed.) American Marketing Association.
10. Steenkamp, J.B.E.M. & Hoffman, D. (1994). "Price and Advertising as Market Signals for Service Quality." In *Service Quality: New Directions in Theory and Practice*, Roland T. Rust and Richard L. Oliver (Eds.), Sage Publications.
11. Hoffman, D.L., de Leeuw, J., & Arjunji, R.V. (1994). "Multiple Correspondence Analysis," In *Advanced Methods of Marketing Research*, Richard P. Bagozzi (Ed.), Blackwell.
12. Hoffman, D.L. & Perreault, W.D., Jr. (1987). The Multidimensional Analysis of Consumer Preference and Perception Data. In *Multidimensional Scaling: History, Theory, and Applications*, F.W. Young and R. M. Hamer (Eds.), Lawrence Erlbaum Associates, Inc.

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13. Young, F.W., Null, C., Sarle, W., & Hoffman, D.L. (1982). Interactively Ordering the Similarities Among a Large Set of Stimuli. In *Proximity and Preference: Problems in the Multidimensional Analysis of Large Data Sets*, R.D. Golledge and S.N. Rayner (Eds.), University of Minnesota Press.

Letters, Comments and Reviews

Hoffman, D.L. and T.P. Novak (2013), "How the Digital Future Killed Advertising," Wharton Future of Advertising Project.

Hoffman, D.L. (2012), "CB As I See It," feature in *Consumer Behavior: Buying, Having, and Being* by Michael Solomon. Tenth Edition, Prentice Hall.

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Hoffman, D.L., Novak, T.P. and M. Peralta (1999), "Con Game?" Information Impact Magazine, April.

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Hoffman, D.L. & Novak, T.P. (1997), "Pushing Passive Eyeballs," *Wired*, 5.3, March.

Hoffman, D.L. (1996), "Cyberspace to Congress: The Net is Mainstream and It Votes!" *MicroTimes*, 148, March 4.

Hoffman, D.L. & Novak, T.P. (1995), "Panning for Business Models in a Digital Gold Rush," *HotWired*, Intelligent Agent Section, April 22.

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Hoffman, D.L. & Novak, T.P. (1994), "Wanted: Net.census," *Wired*, 2.11, November.

Hoffman, D.L. & Novak, T.P. (1994), "How Big is the Internet, *HotWired*, Aug. 18.

Hoffman, D.L. & Novak, T.P. (1994), "Commercializing the Information Super Highway: Are We In for a Smooth Ride?" *The Owen Manager*, 15(2), 2-7.

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Hoffman, D.L. and T.P. Novak (2010), "Retweet: A Digital Meditation On The Power Of Twitter", in *Advances in Consumer Research Volume 38*, eds. Darren Dahl and Gita V. Johar and Stijn van Osselaer, Duluth, MN : Association for Consumer Research, Pages: .

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Thomas P. Novak, Donna L. Hoffman (2007), "New Measures Of Task-Specific Experiential And Rational Cognition", in *Advances in Consumer Research Volume 34*, eds. Gavan Fitzsimons and Vicki Morwitz, Duluth, MN : Association for Consumer Research, Pages: 657-660.

Hoffman, D.L. & Young, F.W. (1982). Quantitative Analysis of Qualitative Data: Applications in Food Preference Research. Food Research and Data Analysis Symposium Proceedings, Oslo, Norway, September.

Hoffman, D.L. & van der Heijden, P.G.M. (1994). Asymmetric Residual Maps for Market Structure Analysis. Proceedings of the Second Annual AMA Advanced Research Techniques Forum, Beaver Creek, Colorado, June 1991.

Unpublished Working Papers

Hoffman, D.L. (1984). Program impact: The key measure of audience response. Columbia Business School Center for Telecommunications and Information Studies Research Working Paper.

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Hoffman, D.L. & Franke, G. (1985). Correspondence analysis: Graphical representation of categorical data in marketing research (contains technical appendix). Columbia Business School Research Working Paper.

Novak, T.P. & Hoffman, D.L. (1987). Residual scaling using the singular value decomposition: Graphical representation of log-linear models. Columbia Business School Research Working Paper, No. 87-1.

Hanssens, D.M. & Hoffman, D.L. (1989). Diagnostic Maps for Product Line Monitoring. The Avis Rent a Car System, Inc. Working Paper Series in Marketing Research Working Paper No. 89-AV-10.

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Hoffman, D.L. and T.P. Novak (1995), "A Detailed Critique of the *TIME* Article: "On a Screen Near You: Cyberporn (DeWitt, 7/3/95)," July 1.

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Reprinted in International Library of Criminology, Criminal Justice and Penology, General Editors, David Nelken and Gerald Mars. Volume on *Cyberspace Crime*, edited by D.S. Wall (in press). Ashgate Publishing Limited.

Hoffman, D.L. and T.P. Novak (1995), "The CommerceNet/Nielsen Internet Demographics Survey: Is It Representative?" December 12.

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Research Conference Presentations

1. Hoffman, D.L. and Novak, T.P (2023), "The Evolving Consumer IoT: A Novel Framework for Marketing Strategy Based on Assemblage Theory," paper presented via Zoom at the Journal of Product Innovation Management Thought Leader Workshop, Babson College, October 6.
2. Hildebrand, C.A., D.L. Hoffman, and T.P Novak (2021), "Detrimental Dehumanization in the IoT: Phonetic & Experiential Consequences of Restricted Human-Machine Interaction," Keynote presentation at the Conference on Artificial Intelligence, Machine Learning, and Business Analytics, Temple University, Fox School of Business (online conference), December 2-3.
3. Hildebrand, C.A, D.L. Hoffman, and T.P. Novak (2021), "Dehumanizing Voice Technology: Phonetic & Experiential Consequences of Restricted Human-Machine Interaction," Paper Presented at the AAAI Artificial Intelligence for Human-Robot Interaction Virtual Symposium (online conference), November 4-6. <https://arxiv.org/abs/2111.01934>
4. Hoffman, D.L. and T.P. Novak (2020), "Object-Oriented Metaphorism as a Mechanism for Understanding AI," paper presented in the Symposium, "Resisting Artificial Intelligence: When Do Decision Makers Avoid or Use Algorithmic Input," Academy of Management Conference, August 10 (online conference).
5. Hoffman, D.L. and T.P. Novak (2020), "Object-Oriented Metaphorism as a Mechanism for Understanding AI," paper presented in the Special Session, "Consumers and Their Smart Devices: Perspectives on Anthropomorphism," Association for Consumer Research Conference, October 1-4 (online conference).
6. Novak, T.P. and D.L. Hoffman (2020), "Quantifying Assemblage Theory to Reify the Possibility Space of Personal Automation Practices," paper presented at the First Virtual ISMS Marketing Science Conference, Session TB10 – Internet of Things, June 11.
7. Hoffman, D.L. and T.P. Novak (2020), "Object-Oriented Metaphorism as a Mechanism for Understanding AI," paper presented at the First Virtual ISMS Marketing Science Conference, Session SC06 – Artificial Intelligence 1, June 13.
8. Hoffman, D.L. and T.P. Novak (2020), "Object Oriented Metaphorism as a Mechanism for Understanding AI," paper presented at the Winter AMA Academic Conference, San Diego, CA, February 13-16.
9. Novak, T.P. and D.L. Hoffman (2020), "Reifying the Possibility Space of IoT Automation Practices: A Machine Learning Approach," Keynote Address presented at the Affective Content Analysis (AffCon) Workshop, AAAI-20, New York City, February 7.

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10. Hoffman, D.L. and T.P. Novak (2019), "Object-Oriented Metaphorism as a Mechanism for Understanding AI," Paper presented at the Psychology of Technology Institute "New Directions in Research on the Psychology of Technology" Conference, UVA Darden Sands Family Grounds, November 8-9.
11. Hildebrand, Christian, D.L. Hoffman, and T.P. Novak (2019), "Dehumanization in the IoT: Experiential Consequences of Human Interaction with Digital Voice Assistants," paper presented in the Special Session, "The Modern Consumer: How New Technologies are Changing Consumer Behavior and Interactions," ACR Fiftieth Anniversary Conference, Atlanta, Georgia, October 17-20.
12. Hoffman, D.L. and T.P. Novak (2019), "Object-Oriented Anthropomorphism as a Mechanism for Understanding AI," paper presented in the Special Session, "Rethinking Anthropomorphism: The Antecedents, Unexpected Consequences, and Potential Remedy for Perceiving Machines as Humanlike," ACR Fiftieth Anniversary Conference, Atlanta, Georgia, October 17-20.
13. Novak, Thomas and D.L. Hoffman (2019), "Reifying the Possibility Space of IoT Automation Practices: A Machine Learning Approach," paper presented in the Special Session, "Extracting Behavioral Insights from Big Data: Novel AI and NLP Approaches," ACR Fiftieth Anniversary Conference, Atlanta, Georgia, October 17-20.
14. Hoffman, D.L. and T.P. Novak (2019), "Object-Oriented Metaphorism as a Mechanism for Understanding AI," paper presented in the Symposium, "Rethinking Anthropomorphism: The Antecedents, Unexpected Consequences, and Potential Remedy for Perceiving Machines as Humanlike," the American Psychological Association Technology, Mind, and Society Conference, Washington, DC, October 3-5.
15. Novak, T.P. and D.L. Hoffman (2019), "Reifying the Possibility Space of IoT Automation Practices: A Machine Learning Approach," paper presented at the 11th Triennial Invitational Choice Symposium, Cambridge, Maryland, May 30 – June 1.
16. Hoffman, D.L. and Novak, T.P. (2019), "Impact of AI on Consumer Experience," paper presented at the 11th Triennial Invitational Choice Symposium, Cambridge, Maryland, May 30 – June 1.
17. Hoffman, D.L. and Novak, T.P. (2019), "AI: Beyond Friend or Foe," paper presented at the Theory + Practice in Marketing (TPM) Conference, Columbia, May 16-18.
18. Hoffman, D.L. (2019), "Marketing Strategy Panel," Lehmann Fest Research Conference in Honor of Don Lehmann's 50th Anniversary Columbia University, May 10-11.

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19. Novak, T.P. and D.L. Hoffman (2019), "Reifying the Possibility Space of IoT Automation Practices: A Machine Learning Approach," paper presented at the GWSB Inaugural Conference on the Intelligence of Things, April 5.
20. Hoffman, D.L. (2019), "Managing Institutional and Cultural Complexity in the Contemporary Digital Marketplace," Discussant, Special Session, Winter AMA, Austin, TX, February 22-24.
21. Hoffman, D.L. (2019), "Opportunities and Challenges in Using Computational Methods to Study the Impact of AI on Consumer Behavior," paper presented in Special Session on Machine Learning for Consumer Behavior Research, Winter AMA, Austin, TX, February 22-24.
22. Hoffman, D.L. (2019), "The Future of Omni-Social Marketing," Invited Panel Session, Winter AMA, Austin, TX, February 22-24.
23. Hoffman, D.L. (2018), "Studying the Effects of New Tech: Methodological Challenges and Solutions," presentation in the Roundtable Special Session, "Trust in the Age of AI," Association for Consumer Research, Dallas, TX, October 11-14.
24. Novak, T.P. and D.L. Hoffman (2018), "A Computational Social Science Framework for Visualizing the Possibility Space of Consumer-Object Assemblages from IoT Interaction Data," paper presented in the Special Session, "The Technological Consumer in an Interconnected World," Association for Consumer Research, Dallas, TX, October 11-14.
25. Hoffman, D.L. and T.P. Novak (2018), "Object-Oriented Anthropomorphism as a Mechanism for Understanding AI," paper presented in the Special Session, Association for Consumer Research, Dallas, TX, October 11-14.
26. Novak, T.P. and D.L. Hoffman (2018), "A Computational Social Science Framework for Visualizing Emergent Consumer Experience from IoT Interaction Data," paper presented at SCECR 2018, Rotterdam, June 18-19.
27. Novak, T.P. and D.L. Hoffman (2018), "A Computational Social Science Framework for Visualizing Emergent Consumer Experience from IoT Interaction Data," paper presented at Theory + Practice in Marketing, UCLA, May 16-18.
28. Hoffman, D.L. and T.P. Novak (2018), "Mining the Secret Life of Objects: An Object-Oriented Approach to Constructing Representations of Object Experience," accepted for

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presentation at the 2018 Society for Consumer Psychology Conference, Dallas, TX, February 15-17.

29. Hoffman, D.L. and T.P. Novak (2018), "The Changing Relationship Between Consumers and Objects in the IoT," presentation in the invited special session "Doing Observational Research," presentation at the 2018 Winter American Marketing Association Conference, New Orleans, LA, February 23-25.
30. Hoffman, D.L. and T. P. Novak (2017), "Understanding Object Experience," paper presented at the 2017 Association for Consumer Research Conference, San Diego, CA, October 26-29.
31. Novak, T.P. and D.L. Hoffman (2017), "Send 'Her' My Love: A Circumplex Model for Understanding Relationship Journeys in Consumer-Smart Object Assemblages," paper presented at the 2017 Association for Consumer Research Conference Special Session: Human-Object Relationships: How Consumers Interact with Analog and Digital Things in Analog and Digital Worlds, October 26-29.
32. Hoffman, D.L. and T.P. Novak (2017), "Consumer-Object Relationship Styles in the Internet of Things, paper presented at the Consumer Culture Theory Conference, Anaheim, CA, July 10-12.
33. Hoffman, D.L. (2017), "What Do You Mean She Doesn't Work There Anymore? Challenges and Rewards of Research and Data Collaborations with Industry Sponsors," Paper presented at the AMA Doctoral Consortium, Research Frontiers 2: Managing Collaborations, University of Iowa, June 14-17.
34. Novak, T.P. and D.L. Hoffman (2017), "Visualizing Emergent Identity of Assemblages in the Internet of Things: A Topological Data Analysis Approach, paper presented at EMAC, Groningen, Netherlands, May 23-26.
35. Hoffman, D.L. and T.P. Novak (2017), "Consumer-Object Relationship Journeys in the Internet of Things," paper presented at the Thought Leaders in Consumer-Based Strategy Conference, Amsterdam, May 19-21.
36. Hoffman, D.L. and T.P. Novak (2017), "How to Market the Consumer IoT: Focus on Experience," MSI Webinar, March 1.
37. Hoffman, D.L. (2017), "Consumer-Object Relationship Journeys," paper presented at the Invited Special Session, Winter AMA, Orlando, FL, February 17.

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38. Hoffman, D.L. (2017), "The Impact of Marketer-Consumer Collaborations in the IoT," paper presented in Special Session, Winter AMA, Orlando, FL, February 18.
39. Hoffman, D.L. and T.P. Novak (2016), "When Dumb Objects Become Smart, Do Smart Consumers Become Dumb?," presented at the Invited Perspectives Session, ACR Annual Conference, Berlin, Germany, October 27-30.
40. Hoffman, D.L., T.P. Novak, and H. Kang (2016), "Anthropomorphism from Self-Extension and Self-Expansion: An Assemblage Theory Approach to Interactions Between Consumers and Smart Devices," presented at the ACR Annual Conference, Berlin, Germany, October 27-30.
41. Novak, T.P. and D.L. Hoffman (2016), "Visualizing Emergent Identity of Assemblages in the Internet of Things: A Topological Data Analysis Approach," presented at the ACR Annual Conference, Berlin, Germany, October 27-30.
42. Hoffman, D.L. (2016), "Object Experiences and Object Consumers," presented at the ACR 2016 Doctoral Consortium, Berlin, Germany, October 27.
43. Hoffman, D.L. and T.P. Novak (2016), "How to Market the Consumer IoT: Focus on Experience," presented at the MSI Conference on Marketing in the Consumer Internet of Things, September 30, Washington, DC.
44. Hoffman, D.L. and T.P. Novak (2016), "A Machine Learning and Data-Driven Visualization Framework for Studying Emergent Experience in the Consumer IoT," Paper presented at the Mobile + Social: Marketing Big Data Analytics Workshop 10th Triennial Invitational Choice symposium, Lake Louise, Canada, (University of Alberta) May 14-17.
45. Hoffman, D.L., Novak, T.P. and Kang, H. (2016), "Anthropomorphism from Self-Extension and Self-Expansion Processes: An Assemblage Theory Approach to Interactions between Consumers and Smart Devices," paper presented at the Society for Consumer Psychology Winter Conference, St. Pete Beach, FL, Feb 25-27.
46. Novak, T.P. and D.L. Hoffman (2015), "Using Topological Data Analysis to Explore Emergent Consumer Experience from Digital Interactions," keynote presentation at the Center for Complexity in Business Annual Conference, Washington, DC, November 12-13.

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47. Hoffman, D.L. (2015), "Consumer Experience in the Internet of Things," presented at the MSI Board of Trustees Meeting Finding Growth in Disruption, Phoenix, AZ, November 5-6.
48. Novak, T.P. and D.L. Hoffman (2015), "Using Topological Data Analysis to Explore Emergent Consumer Experience from Digital Interactions," presented at the NYU Conference on Digital Big Data, Smart Life and Mobile Marketing Analytics, New York, NY, October 23.
49. Hoffman, D. L. and T.P. Novak (2015), "Consumer Experience in the Connected World: How Emerging Technologies are Poised to Revolutionize Consumer Behavior Research," presentation in the roundtable (Hoffman and Novak co-chairs), 2015 Association for Consumer Research, New Orleans, October 1-3.
50. Hoffman, D.L. and T.P. Novak (2015)," Consumer Experience in the Internet of Things: Conceptual Foundations," paper presented in the invited plenary session "Future Consumer Worlds: How The Internet Of Things, Avatars, Robots, Cyborgs, And Human Enhancement Technologies May Change The Face Of Consumer Psychology- And Our Concept Of What It Means To Be "Human".," 2015 Society for Consumer Psychology 2nd International Conference, June, Vienna, Austria.
51. Hoffman, D.L., T.P. Novak and H. Kang (2015), "Let's Get Closer: How Regulatory Fit Drives Feelings of Connectedness in Social Media," paper presented in the symposium, "Social Media Experience: Implications for Well-Being, Word-of-Mouth and Brand Consumption," 2015 Society for Consumer Psychology Conference, February, Ritz-Carlton, Phoenix, AZ.
52. Hoffman, D.L. (2014), "Marketing in the Internet of Things," MSI Immersion Conference, Boston, MA, September 18-19.
53. Hoffman, D. L. & T.P. Novak (2014), "The Gamification of Smart Devices: Some Preliminary Thoughts on Concepts and Constructs," Winter AMA Pre-Conference Event on Games, Gaming and Gamification, Orlando, FL, February 21.
54. Hoffman, D.L., T.P. Novak (2013), "The Social Life of Content: How Negative Motivations Can Lead to Positive Feelings in Social Media," MSI Conference on Social Media and Social Networks: What Are They Good For, Boston, MA, December 3-4.
55. Hoffman, D.L., T.P. Novak (2013), "Two Paths to Feeling Close and Connected in Social Media," Advertising and Consumer Psychology Conference, San Diego, CA, June 13-15.

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56. Mintz, O. and D.L. Hoffman (2012), "The Impact of Strategic, Market, and Metric Orientation on Social Media Metric Use and Social Media Marketing Performance," Direct/Interactive Marketing Research Summit, Las Vegas, NV, October 13-14.
57. Novak, T.P. and D.L. Hoffman (2012), "Online Experience in Social Media: Two Paths to Connectedness," Association for Consumer Research, Vancouver, BC, October 4-7.
58. D.L. Hoffman, T.P. Novak and R. Stein (2012), "Predicting Identification with Social Media Groups: Flourishing Independents or Languishing Interdependents," Behavioral Decision Research in Management Conference, Boulder, CO, June 27-29.
59. D.L. Hoffman, T.P. Novak and R. Stein (2012), "Predicting Identification with Social Media Groups: Flourishing Independents or Languishing Interdependents," ISMS Marketing Science Conference, Boston, MA, June 7-9.
60. T.P. Novak and D.L. Hoffman (2012), "Relatedness Need Satisfaction During Social Media Goal Pursuit: The Influence of Online Social Identity and Motivations," Conference of the International Communication Association, Phoenix, AZ, May 24-28.
61. D.L. Hoffman and T.P. Novak (2012), "Need Satisfaction from Interacting with People Versus Content: The Roles of Motivational Orientation and Identification with Social Media Groups," Society for Consumer Psychology Annual Conference, Las Vegas, NV, Feb 16-18.
62. D.L. Hoffman, T.P. Novak, and R. Stein (2012), "The Determinants of Online Social Identity," Society for Consumer Psychology Annual Conference, Las Vegas, NV, Feb 16-18.
63. D.L. Hoffman and T.P. Novak (2012), "Need Satisfaction During Social Media Goal Pursuit: The Role of Motivational Orientation and Identification with Online Social Groups," Annual Meeting of the Society for Personality and Social Psychology, San Diego, CA, January 26-28.
64. D. L. Hoffman (2011), "MSI 50th Anniversary Special Session in Support of Consumer Behavior Research," Association for Consumer Research North American Conference, St. Louis, MO, October 13-16, 2011.
65. D.L. Hoffman and T.P. Novak (2011), "Beyond Facebook: Emerging Trends for a Post-Social Media World," MSI Conference on Marketing in the Digital Age," October 5, Berkeley.

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66. D.L. Hoffman and T.P. Novak (2011), "Why People Use Social Media," INFORMS Marketing Science Conference 2011, Rice University, June 9-11.
67. D. L. Hoffman and T.P. Novak (2010), "Retweet: A Digital Meditation on The Power of Twitter," original film, Association for Consumer Research North American Conference, Jacksonville, FL, October 7-10.
68. D.L. Hoffman and T.P. Novak (2010), "Roles and Goals: Consumer Motivations to Use the Social Web," INFORMS Marketing Science Conference 2010, Cologne, Germany, June 16-19.
69. D.L. Hoffman and T.P. Novak (2010), "Are Brand Attitudes Contagious? Consumer Response to Organic Search Trends," INFORMS Marketing Science Conference 2010, Cologne, Germany, June 16-19.
70. D.L. Hoffman, T.P. Novak and J. Silva-Risso (2010), "Validating Brand Tracking Data Against Organic Brand Search Trends," INFORMS Marketing Science Conference 2010, Cologne, Germany, June 16-19.
71. Hoffman, D.L. (2010), "Social Metrics for Social Media," Internet Metrics Session, MSI Pre-Conference Workshop on Marketing Spending, March 1.
72. Hoffman, D.L (2010), "Session One: Allocating Across the Media Mix," panelist, MSI Conference on Effective Marketing Spending, UCLA, March 2-3.
73. D.L. Hoffman and T.P. Novak (2009), "Are Brand Attitudes Contagious? Consumer Response to Organic Search Trends," Google and WPP Marketing Research Awards Conference 09, New York City, November 3.
74. Hoffman, D.L. (2009), "Navigating the Networked Rivers of the Social Web: Emerging Themes for Consumer Behavior Research on Web 2.X," ACR Roundtable, Association for Consumer Research Annual Conference, Pittsburgh, PA, October 22-25.
75. Hoffman, D.L. (2009), "The "Right" Consumers for the Best Concepts: Identifying and Using Emergent Consumers in Developing Innovations," MSI Customer Insights for Innovation Conference, University of Miami School of Business, Coral Gables, FL, June 18-19.
76. Hoffman, D.L. (2009), "Decomposing Morris: A Curious Correspondence Analysis," "Morrisfest" Symposium, Graduate School of Business, Columbia University, May 8. (Invited)

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77. Hoffman, D.L. P. Kopalle, and T.P. Novak (2008), "The "Right" Consumers for the Best Concepts: A Methodology for Identifying Emergent Consumers for New Product Development," ACR North American Conference, Hyatt Regency Hotel, San Francisco, CA, October 23-26. (presenter)
78. Hoffman, D.L. (2008), "Generating Customer Insights from the "Social Web:" Are Marketers Ready to Give Up Control?," Direct Marketers Educational Foundation (DMEF) Direct/Interactive Marketing Research Summit, Las Vegas Hilton, Las Vegas, NV, October 11-12. (Invited)
79. Hoffman, D.L. (2008), "Generating Customer Insights from the 'Social Web': Are You Ready to Give Up Control?," MSI Board of Trustees Meeting and Conference on New Insights on Customer Behavior, Langham Hotel, Boston, MA, April 10-11.
80. Hoffman, D.L., P. Kopalle, and T.P. Novak (2008), "The 'Right' Consumers for Concept Development: Development and Validation of a Scale to Measure Emergent Nature," UC/USC Marketing Colloquium, University of California, Irvine, April 4. (presenter)
81. Hoffman, D.L. (2008), "The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," (presentation and panel moderator) MSI/Sloan Conference on Leveraging Online Media and Online Marketing, UCR Palm Desert Campus and Hotel Miramonte Resort, February 6-8.
82. Hoffman, D.L. (2008), "User Generated Content," MSI/Sloan Conference on Leveraging Online Media and Online Marketing, UCR Palm Desert Campus and Hotel Miramonte Resort, February 6-8.
83. Hoffman, D.L. (2007), "Cognitive Augmentation: Can the Internet Make You Smarter and More Creative?" Sloan Center for Internet Retailing Networking Workshop, Riverside, CA, May 3-4.
84. Hoffman, D.L. and Novak, T.P. (2006), "Subject Recruitment and Panel Management: Experience and Observations Based on our Work Creating eLab and eLab 2.0," ACR Roundtable on Doing Better Web-Based Research, ACR North American Conference, Orlando, FL, September 28-October 1. (presenter)
85. Hoffman, D.L. (2006), "Perspectives on Marketing in the Electronic Marketplace: Challenges and New Directions for Research and Instruction," Technology and Innovation SIG Special Session, AMA Summer Marketing Educator's Conference, Sheraton Chicago Hotel and Towers, Chicago, IL, August 4-7, 2006.

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86. Hoffman, D.L. (2005), "A Decade of Empirical Research Regarding the Internet," ACR Doctoral Symposium, San Antonio, TX, September 29."
87. Novak, T.P and D.L. Hoffman (2005), "The Impact of Consumer Thinking Style on Performance: Measure of Task-Specific Experiential and Rational Cognition," Marketing Science Conference, Emory University, Atlanta, GA, June 17.
88. White, T., D.L. Hoffman, and T.P Novak (2005), "Forgotten Favors: Biased Account Keeping in Information-Driven Consumer-Seller Relationships," Society for Consumer Psychology Winter Conference, St. Petersburg, Florida, Feb 24-28.
89. Hoffman, D. L., P. Kopalle, and T. P. Novak (2004), "Identifying and Using Emergent Consumers in Developing Radical Innovations," ACR North American Conference, Portland, October 7-10.
90. Hoffman, D.L. "A Brief Overview of eLab Research," Inaugural Partner Conference, Vanderbilt University Sloan Center for Internet Retailing, November 7, 2003.
91. Hoffman, D.L., T.P. Novak and F. Wan (2003), "The Impact of Online Product Review Characteristics on Consumer Preferences," ACR North American Conference, Toronto, October 9-12.
92. Hoffman, D.L., T.P. Novak and F. Wan (2003), "The Impact of Online Product Review Characteristics on Consumer Preferences," UCLA CIBER/CMIE Conference, Managing in the Global Information Economy, Anderson Graduate School of Management, UCLA, September 12-13, 2003.
93. Hoffman, D.L., Novak, T.P. and Kumar, P. (2002), "How Processing Modes Influence Consumers' Cognitive Representations of Product Perceptions Formed from Similarity Judgments," Association for Consumer Research, Atlanta, October 16-20.
94. Hoffman, D.L. (2001), "Consequences of the Web for Customers and Firms: Developing A Research Agenda for Internet Marketing," Presentation at the CMIE Conference: Research Directions in the Management of the Information Economy, Anderson Graduate School of Management, UCLA, February 9.
95. Hoffman, D.L., Novak, and Schlosser (2001), "Consumer Control in Online Environments," Society for Consumer Psychology Winter Conference, Scottsdale, Arizona, February 15-17.

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96. Hoffman, D.L. (2000), "An Integrative Framework for Internet Commerce," Marketing Science Institute Board of Trustees Meeting, "Marketing Knowledge in the Age of E-Commerce," Loews Coronado Bay Resort, San Diego, CA, November 2.
97. Hoffman, D.L. Novak, T.P. and Schlosser, A. (2000), "Consumer Control in Online Environments," Association for Consumer Research, October 19-22.
98. Novak, T.P., Hoffman, D.L., and Yung, Y.F. (1999), "Modeling the Structure of the Flow Experience Among Web Users: A Structural Modeling Approach," Paper presented at the Association for Consumer Research Conference, September 30 – October 3, Columbus, Ohio.
99. Hoffman, D.L. (1999), "The State of the Field: Internet Marketing" panel moderated at the 1999 American Marketing Association Summer Educator's Conference, San Francisco, CA, August 7-10.
100. Hoffman, D.L. and T.P. Novak (1997), "New Metrics for New Media: Toward the Development of Web Measurement Standards," paper presented at the Special Session: Marketing on the Internet, 1997 INFORMS Marketing Science Conference, Berkeley, CA. March 21-24.
101. Hoffman, D.L. and T.P. Novak (1997), "Web Server Log File Analysis: Scanner Data for the New Millennium," paper presented at the Special Session: Web Server Log File Analysis, 1997 INFORMS Marketing Science Conference, Berkeley, CA. March 21-24.
102. Hoffman, D.L. (1996), "Communication Models and Media Measurement in Computer-Mediated Environments: Research Issues and Challenges" INFORMS Spring Conference on Information Systems and Technology, Panel on Web and IS Research, May 7.
103. Hoffman, D.L. (1996), "Commerce in Cyberspace: What Role for Marketing Scientists?" Panel Discussion presented at the 1996 INFORMS Marketing Science Conference, Gainesville, March 7-10.
104. Chatterjee, P., D.L. Hoffman, and T.P. Novak (1996), "Modeling Consumer Response on the World Wide Web: Implications for Advertising," paper presented at the 1996 INFORMS Marketing Science Conference, The University of Florida, Gainesville, March 7-10.
105. Hoffman, D.L. and Novak, T.P. (1995), "Measuring the Internet," Sixth Conference on Organization Computing, Coordination and Collaboration International Conference on Electronic Commerce, University of Texas at Austin IC2 Institute, October 29-31, 1995.

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106. Novak, T.P. and D.L. Hoffman (1995), "Consumer Behavior in Computer-Mediated Environments: Conceptual Foundations," poster presented at the Association for Consumer Research Conference, Minneapolis, MN, October 19-21.
107. Novak, T.P. and D.L. Hoffman (1995), "Marketing in Hypermedia Computer-Mediated Environments: Propositions," paper presented at the 1NFORMS Spring 1995 National Meeting, Los Angeles, April 24-26.
108. Hoffman, D.L. (1994), "Implications of Commercializing the Internet for Marketing Theory and Practice" The Marketing Information Revolution. AMA Summer Marketing Educators' Conference, San Francisco, August 6-9; and the AMA/Vanderbilt Frontiers in Services Conference, October.
109. Hoffman, D.L. and de Leeuw, J. (1993). Benefit Segmentation and Structuring in Service Business Markets. Paper presented at the TIMS Marketing Science Conference, Washington University, March 11-14.
110. Hoffman, D.L. and Lilien, G. (1992). Assessing the Direction and Magnitude of Perceptual Bias in Relative Influence Judgments. Paper presented at the ORSA/TIMS Joint National Meeting, San Francisco, CA, November 2-4.
111. Hoffman, D.L. (1992). Measuring Customer Perceptions of Service Quality. Invited paper presented at the AMA/Vanderbilt Services Marketing Conference.
112. Hoffman, D.L. and de Leeuw, J. (1992). A Two-Stage Procedure for Analyzing Automobile Switching: The Car Challenge. Invited paper presented at the TIMS Marketing Science Conference, London Business School, July 12-15.
113. Hoffman, D.L. and de Leeuw, J. (1992). Using Optimal Scaling to Improve Model Estimates from LISREL. Paper presented at the TIMS Marketing Science Conference, London Business School, July 12-15.
114. Hoffman, D.L. and de Leeuw, J. (1991). Linearizing Nonlinear Association with Optimal Scaling: Reducing Bias and Improving Stability in Multivariate Linear Models. Paper presented at the ORSA/TIMS Joint National Meeting, Anaheim, CA, November 3-6.
115. Steenkamp, J.-B. and Hoffman, D.L. (1991). Quantifying Brand Equity Maps. Paper presented at the Annual Conference of the Deutsche Gesellschaft für Operations Research, Stuttgart, Germany, September 4-6.

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116. Hoffman, D.L. & Steenkamp, J.-B. (1991). A Judgmental Approach to the Measurement of Brand Equity. Paper presented at ORSA/TIMS Marketing Science Conference, University of Delaware and DuPont Company, March 21-23.
117. Hoffman, D.L. & Lilien, G.L. (1990). Relative Influence in Husband-Wife Decision Making: Threats to Validity in the Key Informant Problem. Paper presented at ORSA/TIMS Marketing Science Conference, University of Illinois, March 22-25.
118. Hanssens, D.M. & Hoffman, D.L. (1989). Strategic Maps for Product Portfolio Management. Paper presented at ORSA/TIMS Joint National Meeting, New York, October 16-18.
119. Hanssens, D.M. & Hoffman, D.L. (1989). Monitoring the effectiveness of marketing strategy for a product line. Paper presented at ORSA/TIMS Marketing Science Conference, Duke University, March 17-19.
120. Hoffman, D.L. (1988). A methodology for analyzing asymmetric structure in transition matrices. Paper presented at ORSA/TIMS Joint National Meeting, Denver, October 23-26.
121. Novak, T.P. & Hoffman, D.L. (1987). Graphically representing nested log-linear models through decomposition of deviance residuals. Paper presented at Psychometric Society Annual Meeting, Montreal, June 17-19.
122. Hoffman, D.L. & Novak, T.P. (1986). Analyzing square data tables with residual scaling. Paper presented at ORSA/TIMS Joint National Meeting, Miami, October 27-29.
123. Hoffman, D.L. & DeSarbo, W. (1986). Constructing joint space maps from "pick-any/n" data: An illustration of a new stochastic unfolding model. Paper presented at TIMS XXVII International Meeting, Gold Coast City, Australia, July 21-23.
124. Hoffman, D.L. & DeSarbo, W. (1985). An unfolding choice model for binary data. Paper presented at ORSA/TIMS Joint National Meeting, Atlanta, November 4-6.
125. Hoffman, D.L. & Batra, R. (1985). Contingent effects of program environment on advertising effectiveness. Paper presented at Annual Association for Consumer Research Conference, Las Vegas, October 17-20.
126. DeSarbo, W. & Hoffman, D.L. (1985). Simple and weighted unfolding threshold models for the spatial representation of binary choice data. Paper presented at the ORSA/TIMS Marketing Science Conference, Vanderbilt University, March 6-9.

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127. Hoffman, D.L. (1984), A Marketing Application of Correspondence Analysis. Paper presented at ORSA/TIMS Marketing Science Conference, University of Chicago, March 12-14.

Invited University Research Seminars

"Object-Oriented Metaphorism as a Mechanism for Understanding AI," Baruch College, Zicklin School of Business, New York City, November 1, 2019; Boston University Zoom Behavior Lab, July 29 (online seminar); Department of Marketing Fall Seminar Series, Schulich School of Business, York University, October 22, 2020 (online seminar).

"Quantifying Assemblage Theory: A Conceptual Empirical, and Data-Driven Approach to Guide Discovery," Wharton School/York University Language Lab, August 20, 2020 (online seminar).

"Reifying the Possibility Space of IoT Automation Practices: A Machine Learning Approach," Keynote, Voya Financial Colloquium: Innovation and Technology in Marketing, University of Connecticut, September 27, 2019; Baruch College, Zicklin School of Business, New York City, November 1, 2019.

"A Computational Consumer Culture Approach to Visualizing the Possibility Space of Automation Assemblages," Ivey Business School, Western University, Canada, November 2, 2018; University of Hong Kong (HKU), January 17, 2019; Boston University Marketing Department Seminar Series, February 12, 2019; Southern California Consumer Culture Community, Annenberg School, University of Southern California, March 8, 2019; John Hopkins University Carey Business School Marketing Department Seminar Series, March 20, 2019.

"An Assemblage Theory Approach to Consumer Experience and Consumer-Object Relationships," Marketing Ph.D. Student Workshop, University of Hong Kong (HKU), January 22, 2019.

"Mining the Secret Life of Objects," University of Hong Kong (HKU), Visiting Scholar Presentation, January 17, 2019.

"A Computational Social Science Framework for Visualizing Emergent Consumer Experience from IoT Interaction Data," Stanford Graduate School of Business Marketing Department Seminar Series, February 13, 2018; Temple University Data Science Institute Seminar Series, April 10, 2018; University of California Berkeley Haas School of Business Marketing Department Seminar Series, April 23, 2018; UCSD Rady School Marketing Department Brown Bag Seminar Series, May 9, 2018; UCI Marketing Department Seminar Series, June 8, 2018; University of Geneva, School of Economics and Management, June 21, 2018.

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Donna L. Hoffman

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“Send ‘Her’ My Love: A Circumplex Model for Understanding Relationship Journeys in Consumer-Smart Object Assemblages,” York University, September 29, 2017.

“Consumer and Object Experience in the IoT: An Assemblage Theory Perspective,” Georgetown University Marketing Department Research Seminar Series, November 4, 2016; UCSD Rady School of Management Marketing Department Research Seminar Series, March 16, 2017; University of Maryland Marketing Department Research Seminar Series, March 29, 2017; Virginia Tech Northern Virginia Center Marketing Department Research Seminar Series, March 31, 2017; University of Illinois marketing Department Research Seminar Series, April 21, 2017.

“Emergence from Interaction in the Consumer Internet of Things: An Assemblage Theory Approach,” Marketing Research Symposium, Lazaridis School of Business and Economics, Wilfrid Laurier University, April 21, 2016.

“Online Experience in Social Media: Two Paths to Connectedness,” Department of Marketing, Goethe-University in Frankfurt/Main, September 14, 2012.

“Beyond Facebook: Friendly Devices” Stanford SIEPR Policy Forum, Social Media and the Connected Economy, Stanford University, November 18, 2011.

“Augment Me: Marketing Strategies for a Post-Social Media World” Baker Speaker Series, Wharton School, University of Pennsylvania, September 29, 2011.

“Why People Use Social Media: How Online Social Identity and Motivations Influence the Experience of Being Connected,” University of Miami School of Business Department of Marketing Seminar, October 5, 2010; University of Pittsburgh Katz School of Business Department of Marketing Seminar, July 8, 2011; Wharton School, University of Pennsylvania, September 30, 2011.

“Are Brand Attitudes Contagious: Consumer Response to Organic Search Trends,” University of Notre Dame Mendoza College of Business Marketing Department Seminar, December 4, 2009; University of Washington Marketing Foster School of Business Marketing Seminar Series, February 12, 2010; University of Miami School of Business Department of Marketing Seminar, October 5, 2010; University of Southern California Marshall School of Business Marketing Seminar Series, September 17, 2010.

“Consumer Thinking Style, Task Congruence, and Performance: New Measures of Task-Specific Experiential and Rational Cognition,” Distinguished Speaker Series, College of Management, Georgia Institute of Technology, Atlanta, GA, October 20, 2005; Stellner Scholar Distinguished

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Guest Lecture presented at the College of Business, University of Illinois, Champaign Illinois, November 18, 2005; Invited Seminar, University of California, Riverside, December 8, 2005.

"Identifying and Using Emergent Consumers in Developing Radical Innovations," Distinguished Speaker Series, College of Management, Georgia Institute of Technology, Atlanta, GA, October 20; Stellner Scholar Distinguished Guest Lecture presented at the College of Business, University of Illinois, Champaign Illinois, November 18; Invited Seminar, University of California, Riverside, December 8; 2005; Sloan Industry Studies Centers' Annual Conference, Georgia Institute of Technology, April 19-21, 2004; Tuck Marketing Seminar Series, Dartmouth University, March 19, 2004.

"The Impact of Online Product Review Characteristics on Consumer Preferences," Graduate School of Management, University of California, Irvine, July 8, 2003.

"Research Directions for E-Commerce," Anderson Graduate School of Management, UCLA, February 2001.

"The Internet is a New Marketing Paradigm" Graduate School of Business, Stanford University, July 12, 2000; Haas School of Business, Berkeley, July 25, 2000 (with T.P. Novak)

"Integrating the Internet into Scholarly Research Paradigms," Marketing Seminar, Stern School of Business, New York University, March 4-5, 1999 (with T.P. Novak)

"Modeling the Structure of the Flow Experience Among Web Users," Information Systems/Marketing Seminar, Stern School of Business, New York University, March 4-5, 1999. (with T.P. Novak)

"Measuring the Flow Experience Among Web Users" Stanford Marketing Camp, July 17-20, 1997. (with T.P. Novak)

"Marketing In Computer-Mediated Environments: Research Issues and Challenges," CRITO, University of California at Irvine, May 3, 1996 (with T.P. Novak)

"Marketing in Hypermedia Computer-Mediated Environments: Implications for Commercialization of the World Wide Web" Interval Research Corporation, October 1994; Stanford University Marketing Seminar, August 3, 1995. (with T.P. Novak)

"Graphical Models of Consumer Perception and Preference" University of North Carolina, November 1992.

"Maximizing Customer Satisfaction Through Market-Driven Quality," University of Texas at Dallas, March 1992; Vanderbilt 1992

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"Asymmetric Residual Maps for Market Structure Analysis" Marketing Modeler's Group NY, March 1987; University of Washington, December 1988; Fourth Annual Texas Universities' Marketing Faculty Research Colloquium, Texas A&M University, April 4-5, 1991; Second Annual AMA ART Forum, Beaver Creek, Colorado, June 1991; University of Utah, March 1992; Carnegie Mellon University, April 1992; University of Groningen, May 1992.

"Dyadic Disagreement: An Exploratory Analysis of Household Purchase Influence and Reporting Bias," Pennsylvania State University, November 1990.

"Diagnostic Maps for Product Line Monitoring" UCLA July 1989; Columbia Summer Workshop June 1989; University of Iowa, February 1990; University of Texas at Dallas, February 1990.

"Correspondence Analysis and Related Methods" UCLA (Psychology) April 1987; University of Washington, December 1988.

"Residual scaling and the Analysis of Asymmetric Market Structure" Sixth Annual Columbia/Wharton Joint Seminar, January 30, 1987.

Invited Industry and Government Seminars and Conferences

Hoffman, D.L. (2019), "AI and the Future of Marketing: From Efficiency to Experience," Marketing Edge Board of Trustees Meeting, George Washington University School of Business, October 10.

Hoffman, D.L. (2019), "AI and the Future of Retailing: From Efficiency to Experience," New Insights on Retail Evolution from Top Universities, ShopTalk 2019, March 3.

Hoffman, D.L. (2018), "The IoT: Opportunities and Challenges," Presentation to the StarTech.com Marketing Roundtable, Ivey Spencer Leadership Centre, Ivey Business School, Western University, Canada, November 1.

Novak, T.P. and D.L. Hoffman (2018), "A Computational Social Science Framework for Representing Emergent Consumer Experience," Presented at Ayasdi, Inc., Menlo Park, CA, May 22.

Novak, T.P. and D.L. Hoffman (2018), "A Computational Framework for Visualizing the Possibility Space of Emergent Consumer Experience," Presented at IFTTT, San Francisco, CA, April 24.

Vita**Donna L. Hoffman****Page 34****March 2025**

Hoffman, D.L. (2017), "The Impact of the Internet of Things on Consumers and Business," Keynote presentation at the EFMI Vision on Food Congress 2017, Theme: "Food for Thought," Kasteel De Vanenburg, Putten, Netherlands, May 23.

Novak, T.P. and D.L. Hoffman (2016), "Using Topological Data Analysis (TDA) to Visualize Interaction Events from IFTTT Recipes and Smart Home Sensors," Presented at Ayasdi, Inc., Menlo Park, CA March 10.

Hoffman, D.L. and T.P. Novak (2016), "How to Market the Smart Home: Focus on Emergent Experience, Not Uses Cases," Presented at CBS Interactive, San Francisco, CA, March 11.

Hoffman, D.L. (2016), "How to Market the Smart Home: Focus on Emergent Experience, Not Use Cases," Presented at Brite '16, Columbia University, NY, NY, March 7.

Novak, T.P. and D.L. Hoffman (2015), "Exploring Emergent Consumer Experience: A Topological Data Analysis Approach," Presented at IFTTT, San Francisco, CA, November 25.

"The Digital Customer," Discussion, 2012 SAP CEO Event, March 16, 2012.

"Are Brand Attitudes Contagious: Consumer Response to Organic Search Trends," Paper presented at the Google/WPP Marketing Research Awards, November 3, 2009.

"What is Web 2.0?" Business Leaders Roundtable, UCR Palm Desert Graduate Center, March 12, 2009.

"Emergent Consumers Can Help Develop Successful Future Ideas," Discussion Paper presented at the NSF GENI Opt-In Workshop, Charles Hotel, July 20-21, 2008 (Presenter. Co-authored with T.P. Novak)

"Examining How the "Social Web" is Creating New Opportunities – And Possible Threats," eTail 2008, JW Marriott Desert Springs, Palm Desert, CA, February 11-14, 2008.

"The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," Shop.org Annual Summit, Mandalay Bay Resort, Las Vegas, NV, September 17-19, 2007.

"The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," MarketLive E-Commerce Summit, Fairmont Sonoma Mission Inn, Sonoma, CA, June 18-20, 2007.

"How to "Lock in" Your Customers ... and Lure Them Away from Competitors," Panel Presentation at the 2005 Shop.org Annual Summit, Las Vegas, NV, Sept 12-14, 2005.

Vita**Donna L. Hoffman****Page 35****March 2025**

"Managing the Customer Chain: From Theory to Practice," Presentation to the Nashville Technology Council, Tech Roundtable, October 2, 2003.

"Do You Really Understand Your Customers," Panel Presentation at the 2003 Shop.org Annual Summit, New York City, Sept 24-26, 2003.

"The Consumer Experience: A Research Agenda Going Forward," FTC Public Workshop 1: Technologies for Protecting Personal Information: The Consumer Experience. Panel: "Understanding How Consumers Interface with Technologies Designed to Protect Consumer Information," May 14, 2003

"eLab: A Model for Online Consumer Behavior," Keynote address, American Marketing Association EXPLOR Forum, Chicago, Nov 21-22, 2002.

"Internet Advertising: From CPMs to Results," United States Securities and Exchange Commission Portals Roundtable: Relationships Between Broker-Dealers and Web Sites, May 23, 2001.

"An Integrated Framework for Internet Commerce," Presentation at the CMIE Conference Accelerating Change in the Information Economy Anderson Graduate School of Management, UCLA, February 7-8, 2001.

"An Integrated Framework for Internet Commerce," DaimlerChrysler, Stuttgart, Germany, January 2001.

"Today's Web Consumer," Presentation to the Round Table Group E-Commerce Bootcamp, Gleacher Center, Chicago, June 26, 2000.

"Internet Commerce in Action," Presentation at the Sterling Commerce Secrets of the E-Business Masters E-Business Strategies Conference, May 8-11, 2000.

"The Internet Revolution and Consumer Privacy: Can They Coexist?" Keynote presented at the Skadden, Arps, 2000 Women's Retreat, Four Seasons Resort, Palm Beach, May 19-21, 2000.

"The Evolution of the Digital Divide: Implications for a Research Agenda," Invited presentation at the Digital Divide Seminar, Markle Foundation, February 14, 2000.

"A Model of Stickiness," Invited paper presented at the *Industry Standard* Internet Summit 99, Ritz-Carlton Laguna Niquel, July 18-20, 1999.

"The Digital Divide: Issues for the Diffusion of Electronic Commerce," Invited paper presented

Vita**Donna L. Hoffman****Page 36****March 2025**

at "The Digital Economy: New Research, Data, and Tools," White House Conference sponsored by NSF, the Department of Commerce and the OECD, May 25-26, 1999 (with T.P. Novak)

"Internet Commerce in Action," Mini-Keynote presentation at the Sterling Commerce Worldwide Conference, *EC Strategies*, Chicago, May 13, 1999.

"Issues of Equity, Privacy, and Commercialism," Invited paper and moderated session presented at The Internet and the Family Conference, Annenberg Public Policy Center National Press Club, Washington, DC, May 4, 1999.

"Linking Internet Marketing with Business Practice: The State of the Field," Invited paper presented at the MSI 1998 Fall Board of Trustees Meeting: From Here to '00: Putting Our Priorities to Work, Phoenix AZ, November 5-6, 1998 (with T.P. Novak)

"Are Women Different?: Gender differences in Web Shopping Behaviors and Their Implications for Internet Business Strategy" Special Seminar, Tools for Building Relationships with the Millennium Woman, iVillage.com and Fast Company. September 24, 1998.

"The Internet Opportunity," Keynote address with Tom Novak at the Future Media Research Programme, London Business School, June 4, 1998.

"Internet Commerce: The Ever Changing Landscape," Sterling Commerce Executive Symposium in partnership with FORTUNE Conference Division "Building the Next Generation Enterprise: Reshaping Your Business with Electronic Commerce" Royal York Hotel, Toronto, Canada, May 12-14, 1998.

"The State of the Industry," Opening Keynote at the 1998 CMA Music Industry & New Technologies (MINT) Conference May 13, 1998.

"Integrating the Internet into Your Electronic Commerce Strategies," AHMA, Marcos Island, Florida, January 25-27, 1998.

"Information Privacy in the Marketplace: Implications for the Commercial Uses of Anonymity on the Web," American Association for the Advancement of Science conference, "Anonymous Communications on the Internet: Uses and Abuses," November 21-23, University of California, Irvine, 1997.

"Measuring the Audience: Where Top Researchers Agree and Diverge" Online News Summit, New York Hilton Hotel, New York City, September 11-12, 1997.

"Privacy and Electronic Commerce," EFF/Silicon Valley Industry Briefing with Ira Magaziner on

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"Global Electronic Commerce and Personal Privacy Protection." August 5, 1997.

"Segmenting the Online Consumer Market: Preliminary Findings," Interval Research Corporation, Palo Alto, CA, July 31, 1997

"Measuring the Flow Experience Among Web Users" Stanford Marketing Camp, July 17-20; Interval Research Corporation, Palo Alto, CA, July 31, 1997

"Integrating the Internet into Your Electronic Commerce Strategy" Sterling Commerce Executive Symposium, Hotel Inter-Continental, Miami May 12-13, 1997.

"New Metrics for New Media: Toward the Development of Web Measurement Standards" Keynote Address, IQPC Performance Measurements for Web Sites, Hotel Nikko, San Francisco, February 24-26, 1997.

"Advertising Pricing Models for New Media," Internet Publishing and Beyond: The Economics of Digital Information and Intellectual Property, Kennedy School of Government, Harvard University, Jan 23 - Jan 25, 1997.

"Getting a Grip on Your Technology Strategy" *Fortune* 500 CEO Forum, November 14-16, 1996.

"Commerce on the Internet: Emerging Models" Future of Interactive Marketing Conference, Harvard Business School, May 22-24, 1996; Intel Corporation, Santa Clara, CA, August 12, 1996; Interdisciplinary Aspects of the Electronic Superhighway Seminar, George Washington University, School of Engineering and Applied Science, October 15, 1996.

"Envisioning the Future of Internet Marketing: Understanding the Consumer and Market Response," MIT Sloan School, September 18-19, 1996.

"Internet Research Methodology Workshop" Microsoft Corporation, September 5, 1996.

"Workshop on Flow Measurement Methodology" Interval Research Corporation, August 1, 1996

"Going with the Flow: Tapping Consumer Experience on the Net" Spotlight Executive Conference Directing the Future of Interactive Media, July 28-30, 1996.

"New Metrics for New Media" Netscape Communications Corporation, July 18, 1996.

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"Who Is On the Net?: Implications for Commercial Development," Interval Friday Forum, Interval Research Corporation, Dec. 15 1995; Netscape Communications Corporation, April 18 1996; Stanford Breakfast Briefing Series, July 11, 1996; University of Santa Clara, July 15, 1996.

"Consumer Data and Demographics" Wharton Forum on Electronic Commerce, May 9-10, 1996.

"Leveling the Playing Field: Mass Communication vs. Mass Media," presentation at the Sixth Conference on Computers, Freedom, & Privacy, March 27-30, 1996.

"Commercial Scenarios for the Web: Opportunities and Challenges" Interval Internet Symposium, Interval Research Corporation, February 23 1995; Harvard Business School Colloquium, Multimedia and the Boundaryless World, November 15-17, 1995.

"What Is the Internet and How Can It Help Your Business?" CABLE, Loews Vanderbilt Plaza, October 11, 1995.

"Understanding the Internet Audience "Keynote Address, Net Profits: Doing Business on the Internet, Sheraton Palace, San Francisco, August 1-2, 1995. *[ranked in top 3 of speakers, with Ted Leonsis, President, AOL and Scott Cook, Chairman, Intuit]*

"Business Models that Work on the Net," Net Profits: Doing Business on the Internet, August 1-2, 1995; InterAct '96.

"Measurement Implications of the Internet," Bellcore Measurements Research Symposium, May 18, 1995.

"Correspondence Analysis and Related Methods" 192nd American Chemical Society Meetings, September 1986; First Annual AMA ART Forum, Incline Village, Nevada, June 1992.

"Program Impact: The Key Measure of Audience Response" Beyond Ratings Conference, Columbia University, October 19, 1984.

George Washington University Research Seminars and Events

GWWIB (Women in Business) Panel on Marketing and Advertising, Moderator, April 1, 2023.

"How the Internet of Things is Going to Change Everything," George Talks Business, February 25, 2019. <https://business.gwu.edu/george-talks-business>

"How to Market the Consumer IoT: Focus on Experience," GWSB Board of Advisors Presentation, September 23, 2016.

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"The Center for the Connected Consumer," GWSB Faculty Meeting Presentation, January 23, 2015.

"Consumer Experience in the Smart Home: An Assemblage Theory Perspective," GWSB Marketing Department Brownbag, February 20, 2015.

"The Social Life of Content: How Introjected Motivation Leads to Feeling Close and Connected in Social Media," GWSB Research Brownbag, Dec 12, 2013.

UC Riverside Research Seminars and Events

"Sloan Center Overview," Sunstar Delegation Visit to AGSM, Alumni Center, April 16, 2008.

"The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," Back to Class, UC Riverside Homecoming 08, February 23, 2008.

"The Search for Significance: Emergent Nature and Concept Development," MAMA, November 13, 2007.

"How to "Lock in" Your Customers and Lure Them Away From Competitors," CUC Alumni Breakfast, February 28, 2007.

"The Sloan Center for Internet Retailing and eLab 2.0," AMA Student Club Meeting, UC Riverside, November 1, 2006.

"eLab 2.0 Online Research," MAMA, Department of Psychology, October 30, 2006.

Vanderbilt University Events

"Can We Live Without the Internet? Pondering the Implications of Internet Indispensability," VU Commencement Faculty Seminar, May 12, 2005.

"Privacy on the Internet: Key Ethical Issues and Challenges," Cal Turner Program for Moral Leadership in the Professions, Student Discussion Series: Professions and Privacy, Feb 18, 2005.
"E-Commerce at the Owen School," Faculty Presentation at Diversity Weekend, December 1, 2001.

Owen Strategic Planning On-Site Retreat, Owen Corporate Council, November 8, 2001.

"Electronic Commerce at Owen and the Vanderbilt eLab Initiative," Invited presentation to the IBM Industry Solutions Lab, May 24, 2000.

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"Electronic Commerce at the Owen School," Presentation to the Owen Graduate School of Management, Alumni Association Board of Directors, April 28, 2000.

"Owen's Electronic Commerce Advantage," Invited paper presented at the First Annual Scholar's Weekend, Owen Graduate School of Management, Vanderbilt University, March 25-28, 1999.

"Who's Making Money on the Internet? (Hint: It's Not Who You Think!)," Owen 7:29 Breakfast Group, Ingram Industries, March 25, 1998.

"The Revolution Will Not Be Televised" Vanderbilt Alumni Reception, Capital City Club, February 1995; Nashville Forum, Stadium Club, September 7, 1995.

TEACHING

Post-Doctoral Supervision

Hyunjin Kang (Communications, Pennsylvania State University, Ph.D. 2013)
First placement: Assistant Professor of Communication, Wee Kim Wee School of Communication and Information, Nanyang Technological University, Singapore

Randy Stein (Psychology, Yale University, Ph.D. 2011).
First placement: Assistant Professor of Marketing, Cal Poly Pomona.

Terry Daugherty (Communications, Michigan State University, Ph.D. 2001).
First placement: Assistant Professor of Advertising, University of Texas at Austin.

Fang Wan (Communications, University of Minnesota, Ph.D. 2002).
First placement: Assistant Professor of Marketing, University of Manitoba.

Doctoral Dissertation Committees

Nadia Daniente (Marketing, Gies College of Business, University of Illinois, Ph.D. 2021).
Member. Dissertation topic : "Me, Myself, and AI: The Impact of Artificial Intelligence on Marketing and the Self."

Abishek Borah (Marketing, Marshall School of Business, USC, Ph.D. 2013. First placement :
University of Washington, Seattle). Member. Dissertation topic : "Essays in Consumer Conversations in Social Media."

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Jean-François Guertin (Marketing, HEC Montreal, Ph.D. 2011. First placement : University of Sherbrooke). Member. Dissertation topic : "Three Essays on the Development, Validation and Confirmation of the Flow Construct to Investigate Navigational Web Site Experience"

Ofer Mintz (Marketing, UC Irvine, Ph.D. 2012. First placement: LSU). Member. Dissertation topic: "What Drives Managerial Use of Marketing vs. Financial Metrics and Does it Impact Performance?"

Patrali Chatterjee (Marketing, Vanderbilt University, Ph.D.1998. First placement: Assistant Professor, Rutgers University). Co-Chair. Dissertation topic: "Modeling Consumer Response in World Wide Web Sites - Implications for Advertising."

Anand Narasimhan (Organizational Theory, Vanderbilt University.1997. First placement: Assistant Professor, London School of Business) Co-Chair. Dissertation topic: "Interpretive Stance in Inchoate Industries"

Scott Eggebeen, Ph.D. Measurement, Evaluation and Statistics 1988 (Columbia).

Richard Columbo, Ph.D. Marketing 1987 (Columbia).

Doctoral Qualifying Committees

Brynn Nodarse, UCR Psychology 2007 orals
Abishek Borah, USC Marshall School of Business, 2011 orals

Doctoral Consortia

Co-Chair, ACR Doctoral Symposium, 2018
Faculty, AMA Doctoral Consortium, 2017
Faculty, SCP Doctoral Consortium, 2015
Faculty, ACR Doctoral Consortium, 2010
Resident Faculty, AMA Doctoral Consortium, New York University, July 29 - August 2, 1987

Courses

Undergraduate: AI and Marketing Strategy; Marketing Strategy: Based on First Principles and Data Analytics; Integrated Marketing Communication

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Donna L. Hoffman

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MBA Program: AI and Marketing Strategy; Marketing Strategy: Based on First Principles and Data Analytics; Integrated Marketing Communication; Marketing Strategy and Planning; Digital Commerce Strategy; Strategic Brand Management; New Product Development; Product Management; Internet Marketing Strategy; Managing the Internet Retailing Customer Chain

EMBA Program: Marketing Management (Core); Marketing Planning (Marketing II)

Doctoral Seminars: Marketing in Computer-Mediated Environments; Online Consumer Behavior; Nonlinear Multivariate Analysis of Marketing Data

Executive Teaching

Stanford University Professional Education Executive Programs

Market Strategy for Technology-Based Companies

Faculty, Marketing on the Web I & II, 1996: April 17-19; October 23-25; 1997: April 23-25; October 29-31; 1998: March 18-20.

Columbia Business School Executive Programs, Arden House

Case Discussion Leader, Marketing Management Program 1985-1989

Faculty, Marketing Research Program 1985

Assistant Director, Marketing Management Program 1984-1986

Columbia Business School Executive Programs, Special Programs Division

Faculty, Marketing Management Program, Equitable, Inc., Morristown & Tarrytown, 1988-1989

Faculty, Marketing Management Program, Homeequity, Inc., Connecticut, 1985

SERVICE

Editorial Activities

Editor

Journal of Marketing, Special Issue Co-Editor, "New Technologies and Marketing," 2019-2021

Marketing Intelligence Review: IoT Experiences, Co-Editor, 2018

Journal of Interactive Marketing, Special Issue Editor, "Social Media," 2011

Information Systems Research (Marketing area), Special Issue Editor, 2000-2001

Marketing Science, Special Issue Editor, "Marketing Science and the Internet," 1999-2000

Departmental Editor

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Electronic Commerce Research (Marketing Department)

Associate Editor

Journal of Consumer Psychology, 2024-present
Journal of Marketing, summer 2018-2025
Journal of Consumer Research, 2020-2022
Journal of Marketing Research, Guest AE on multiple manuscripts

Editorial Boards

Journal of Marketing – 2018-2025
Journal of Consumer Research, - Dec 2020, 2022-present
Journal of Marketing Research (2012-)
Journal of Consumer Psychology, (-present)
Journal of Interactive Marketing, Editorial Board founding member 1996-present
International Journal of Electronic Commerce, 1995-present
Social Science Research Network, 2002-present (Advisory Board)
International Journal of Marketing Education, 2002-present

Advisory Panels

Society for Consumer Psychology, 2012-2015

Past Memberships

Journal of Electronic Commerce (Founding Member), Marketing Letters (member of Academic Advisory Board and former member of Editorial Board), Marketing Science (off in 2002), EC World (Founding Member), Managerial Marketing Abstracts, Marketing Research Network

Ad Hoc Reviewing

Journal of Consumer Research, *Academy of Management Review*, *Management Science*, *Marketing Science*, *Communications of the ACM*, *Journal of Computer-Mediated Communication*, *Journal of Marketing*, *Journal of Marketing Research*, *Psychometrika*, *International Journal of Research in Marketing*, *Applied Psychological Measurement*

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Conference Reviewing

2022, Society for Consumer Psychology
2021, ACR Annual Conference
2020 ACR Annual Conference, Associate Editor
2015 Society for Consumer Psychology International Conference
2009 ACR Asia-Pacific Conference (reviewed in 2008)
Society for Consumer Psychology 2008, 2009, 2010, 2011
ACR Annual Conference 1991, 1992, 1999, 2000, 2002, 2003, 2004, 2005, 2008, 2010
AMA Summer Educator's Conference, 1989, 1990, 1991, 1992
AMA Winter Educator's Conference, 1991, 1992, 1993, 1994, 1995

Other Significant Reviewing

Grants

National Science Foundation (various programs)

Research Competitions

John A. Howard American Marketing Association Dissertation Competition, Blue Ribbon Panel, 2015
John A. Howard American Marketing Association Dissertation Competition, numerous years-present
Marketing Science Institute Alden Clayton Doctoral Dissertation Competition, numerous years, 2006-present
MSI - Journal of Marketing Research competition on "Practitioner-Academic Collaborative Research"
SCP Doctoral Dissertation Competition, numerous years, 2006, 2007, 2008

Research Reports

National Research Council Computer Science and Telecommunications Board
ETS Scholastic Achievement Test, Irwin

Conference Organization

Conference Chair

GWSB Inaugural Conference on the Intelligence of Things: Year 1: Research Opportunities and Challenges, April 5, 2019 (Co-Chair)

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Association for Consumer Research Doctoral Symposium, Dallas, TX. October 11, 2018 (Co-Chair)

MSI Conference on Marketing in the Consumer Internet of Things, Washington, DC, September 30, 2016 (Co-Chair)

Direct/Interactive Marketing Research Summit, Las Vegas, NV, October 13-14, 2012 (Co-Chair)

Marketing Science Institute/Sloan Center for Internet Retailing Leveraging Online Media and Online Marketing, UC Riverside Palm Desert Campus and Hotel Miramonte Resort, February 6-8, 2008 (Co-Chair)

Association for Consumer Research Pre-Conference Consumers Online: Ten Years Later, October 25, 2007 (co-chair)

UCR Sloan Center for Internet Retailing Research Networking Workshop, May 3-4, 2007

AGSM Deliberative Dialogue Conference Featuring Duke University Professor Richard Staelin, April 6, 2007

Inaugural Partner Conference, Vanderbilt Sloan Center for Internet Retailing, 2003 (co-chair)

First INFORMS Marketing Science and the Internet Conference, Co-Chair, 1998

Second Annual Columbia Summer Marketing Workshop: Arden Homestead 1989

Sixth Annual Columbia/Wharton Joint Seminar: Columbia University, 1987

Columbia Center for Telecommunications and Information Studies, "Beyond Ratings: New Directions in Audience Measurement Research": Columbia University, 1984.

Session/Track Chair

ACR North America (special session organizer); San Diego, CA 2017

Winter AMA (special session organizer); Orlando, FL, 2017

SCP (symposium organizer); St. Pete Beach, 2016

ACR North America (special session/roundtable organizer); New Orleans 2015

SCP (special session organizer); Phoenix, 2015

INFORMS Marketing Science Conference (track co-organizer); Atlanta 2014

INFORMS Marketing Science Conference (track co-organizer); Istanbul, 2013

INFORMS Marketing Science Conference (track co-organizer); Boston, 2012

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ACR North America (MSI Special Session organizer, with Punam Anand Keller), St. Louis, 2011.
 ACR North America (roundtable organizer), Pittsburgh, 2009.
 ACR North America Conference (special session organizer), Portland, 2004.
 ACR North American Conference (special session organizer); Toronto, 2003.
 AMA Summer Educator's Conference (panel organizer); San Francisco, 1999
 INFORMS Marketing Science Conference (panel organizer); Berkeley, 1997
 INFORMS Marketing Science Conference (panel organizer); Gainesville, 1996
 INFORMS Spring National Meeting (session chair); Los Angeles, 1995
 TIMS XXX-Sobrapo XXIII Joint International Meeting (track chair): Rio de Janeiro 1991
 ORSA/TIMS Marketing Science Conference (session chair): Berkeley 1997; Gainesville 1996;
 Tucson 1994; Seattle 1988; Dallas 1986; Nashville 1985
 ORSA/TIMS Joint National Meeting (session chair): Denver 1988; Miami 1986; Anaheim 1991
 Los Angeles 1995
 ACR Annual Conference (special session chair): Las Vegas 1985

External Administrative Service

Chair, External Review Committee, Five-year Review, Center for Research on Information
 Technology and Organizations (CRITO), University of California, Irvine, 2004

Professional Affiliations and Memberships

Association for Consumer Research, American Marketing Association, INFORMS (member,
 Society for Marketing Science), Industry Studies Association (Founding member, 2009-present),
 Society for Consumer Psychology

Past memberships: Association for Computing Machinery, Classification Society of North
 America, CommerceNet, Psychometric Society

Membership in Professional Organizations

Elected Positions

| | |
|-----------|--|
| 2021-2022 | AMA CB Sig, Past Chair |
| 2020-2021 | AMA CB Sig, Chair |
| 2019-2020 | AMA CB Sig, Chair-Elect |
| 2018-2019 | <i>Journal of the Association for Consumer Research</i> , Policy Board Chair |
| 2017-2020 | Perspectives Director (Industry) Association for Consumer Research Board of Directors |
| 1998-1999 | Past-President, INFORMS Section on Marketing (former name) |
| 1996-1997 | President, INFORMS Section on Marketing |
| 1994-1995 | President-Elect, TIMS College on Marketing |
| 1992-1993 | Secretary-Treasurer, TIMS College on Marketing |

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1992-1993 Editor, TIMS College on Marketing Newsletter (published quarterly)
 1992-1999 Council Member, TIMS College on Marketing Advisory Council
 1995 Program Chair, American Statistical Association, Section on Marketing
 1994 Program Chair-Elect, American Statistical Association, Section on Marketing

Program Committees

ACM Conference on Electronic Commerce EC'08 2008
 Association for Consumer Research (ACR) Annual Conference, multiple years 1992-present
 Computers, Freedom, & Privacy Annual Conference 1996, 1997, 1998
 Society for Consumer Psychology (SCP) Annual Conference, multiple years-present

Boards and Committees

Marketing Edge, Board of Trustees, Member, 2019-2022
 Procter & Gamble Digital Advisory Board February 2009-2013
 Marketing Science Institute, Academic Trustee 2008-2014
 Web Analytics Association, Advisory Board 2005-present
 Marketing Science Institute "Blue Ribbon" Committee, Web Survey Research Project 2004-2006
 Inc. Magazine Web Awards 2001
 EFF Pioneer Awards Judge 2001, 2002, 2003, 2004, 2005
 Prize for Promise (nominator) 2002
 Qbiquity, Advisory Board 2001
 Internet Policy Institute 2000
 eConception, Director 1999-2000
 Credible.org, Advisory Board 1999
 Standard for Internet Commerce, Founding Member 1999
 GII Awards, Final ("Blue Ribbon") Judge, Business Category 1996-1999
 AAAS Project (NSF) on Anonymous Communications on the Internet, Advisory Committee 1996-1997
 Associate Member, CommerceNet; member, Marketing Working Group 1994-2000

Professional Experience

Summer Visiting Scholar, Interval Research Corporation, 1995-1999
 Research Associate, Columbia Business School Institute for Tele-Information, 1984-1985
 Social Science Analyst, Research Triangle Institute, Research Triangle Park, North Carolina, 1980-1981

Strategic Consulting

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Donna L. Hoffman

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March 2025

Bellcore, Bell Northern Research/Northern Telecom, Cohen, Klingenstein & Marks Inc., Daimler-Benz, Eli Lilly, Federal Reserve Board Electronic Payments System Panel, Hewlett-Packard, HotWired, Impact Planning Group, Intel Corporation, Interval Research Corporation, Kantar Futures Practice, Microsoft Corporation, Nashville Chamber of Commerce, Netscape Communications Corporation, Nielsen Media Research, Ogilvy & Mather, Procter & Gamble, (r)evolution partners, Reinault-Thomas, SBC, Starwave, Stratford Associates, Television Audience Assessment, Inc.

Expert Witness

- Written Affidavit for the defendant, October 2024, Harondel J. Sibble v Google LLC, et al. In the Supreme Court of British Columbia, Court File No. VLC-S-S--208705.
- Written Affidavit and Deposition for the defendant, July and October 2024, The State of Texas et al. v Google LLC, Case No. 4:20-CV-957-SDJ.
- Written Affidavit and Deposition for the defendant, March and June 2024, The State of Texas v Google LLC, Case No. 22-01-88230-D.
- Written Affidavit and Deposition for the defendant, Fall 2023, Mobile Emergency Housing Corp. Inc. d/b/a Performance Automotive & Tire Center, and David Justin Lynch, individually and on behalf of all others similarly situated v. HP, Inc. d/b/a HP Computing and Printing, Inc., Case No. 5:20-CV-09157-SVK.
- Written Affidavit and Deposition for the defendant, Spring 2023, Anibal Rodriquez, Sal Cataldo, Julian Santiago, and Susan Lynn Harvey, individually and on behalf of all similarly situated v. Google LLC, Case No. 3:20-cv-04688-RS.
- Written Affidavit and Deposition for the defendant, Fall 2022-Spring 2023, Google Play Store Antitrust Litigation, Case No. 3:21-md-02981-JD.
- Written Affidavit and Deposition for the defendant, Spring and Summer 2022, State of Arizona, *ex. rel.* Mark Brnovich, Attorney General v. Google LLC, a Delaware Limited Liability Company, Case No. CV2020-006219.
- Written Affidavit and Deposition for the plaintiff, Spring 2019, The Reinalt-Thomas Corporation d/b/a Discount Tire, vs Mavis Tire Supply LLC, Case 1:18-cv-05877-TCB.
- Written Affidavit for the defendant, 2015, Federal Trade Commission v. Amazon.com, Inc., Case No. 2:14-CV-01038-JCC.
- Written Affidavit and Deposition for the plaintiff, Summer 2012, The Reinalt-Thomas Corporation d/b/a Discount tire, a Michigan corporation v. AKH Company, Inc, a California corporation, Case No. 2:10-cv-01055-JWS.
- Written Affidavit and Deposition for the defendant, Fall 2009, Autodesk, Inc. vs. Dassault Systèmes SolidWorks Corporation, Case No. 3:08-cv-04397-WHAT.
- Written Affidavit for the plaintiff, Winter 2005, Ameripay, LLC v. Ameripay Payroll Ltd, US District Court for the Northern District of Illinois, Eastern Division, Case No. 2:03-cv-03534-FSH-PS.

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- Written Affidavits for the defendant, Spring 2003, Verizon Northwest, et.al. v. Showalter, et.al., United States District of Washington (Seattle), Case No. 2:02-cv-02342-RBL.
- Written Affidavit for the defendant, Fall 2001, PowerAgent, Inc. v. Electronic Data, US Court of Appeals for the Ninth Circuit, Case No. 02-17022.
- Written Affidavit and Deposition for the defendant, Spring 2001, Amway Corporation v. Procter & Gamble Co, et.al., US District Court, Western District of Michigan, Southern Division, Case No. 1:98-CV-726 (W.D.).
- Written Affidavit, Deposition, and Trial Testimony (January 20, 1999) for the plaintiffs in the Federal trial, American Civil Liberties Union, et al. v. Gonzales, challenging the constitutionality of the Child Online Protection Act (COPA). Eastern District of Pennsylvania (Philadelphia), Case No. 2:98-cv-05591. Lead Witness.
- Written Affidavit for the plaintiff, Orman, et.al. v America Online, Inc., et. al., (April 30, 1998), United States District Court, Virginia Eastern (Alexandria), Case No. 1:97cv264.
- Written Affidavit, Deposition, and Trial Testimony (March 22, 1996) for the plaintiffs in the joined Federal trials, ACLU v. Reno and ALA v. Reno, challenging the constitutionality of the Communications Decency Act (CDA) portion of the Telecommunications Bill of 1996, United States District Court, Pennsylvania Eastern (Philadelphia), Case No. 2:96cv963.

UNIVERSITY AND PRIVATE FOUNDATION GRANTS & CORPORATE GIFTS

Co-Founder and Co-Director, Sloan Center for Internet Retailing (2003-present) and eLab (1994-present.). Professor Tom Novak and I founded eLab/Project 2000 in 1994 to conduct scholarly research in Internet marketing and e-commerce. In March 2003, the Alfred P. Sloan Foundation awarded a grant establishing the Vanderbilt University Sloan Center for Internet Retailing. The Center moved to the University of California, Riverside, in July 2006.

From 1994-2006, we raised over \$3 million in Sloan Center and eLab funding from the sources below:

Corporate Funding (\$932,000 Project 2000/eLab; \$450,000) Sloan Center for Internet Retailing):

CDnow, Daimler-Chrysler, FedEx, the Freedom Forum, Digeo, Financial Services Technology Consortium, First Horizon, Focalink, Gaylord Entertainment, HotWired Ventures LLC, Hewlett-Packard, Ingram Entertainment, Interval Research Corporation, iVillage, J.C. Bradford, Land's End/Sears, NCR Knowledge labs, Neomodal, Netscape, Nielsen Media Research, O'Reilly & Associates, Pitney Bowes, Roche-Diagnostics, Rouse Company, SBC, Shop at Home, Shop.org, Sprint, Sterling Commerce, Sun Microsystems, Vulcan Ventures, VF Corporation, Walmart.com,

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Yankelovich Partners.

Foundation and Government Grants (\$565,000):

Alfred P. Sloan Foundation, American Association for Advancement of Science, The Aspen Institute, The Freedom Forum First Amendment Center, Marketing Science Institute, John and Mary R. Markle Foundation, National Science Foundation

University Grants (\$1,075,000):

Vanderbilt University Central Administration, Vanderbilt University Research Council, Vanderbilt University Medical Center

The Sloan Center for Internet Retailing moved to UC Riverside in July 2006.

Corporate Gifts

| | |
|--------------------------|----------|
| Newsfutures 04/2007 | In-kind |
| GSI Commerce 12/2007 | \$ 5,500 |
| Organize.com 12/2007 | \$ 5,000 |
| Procter & Gamble 09/2008 | \$ 5,000 |
| Miller Coors 09/2008 | \$10,000 |
| Hershey 09/2009 | \$ 5,000 |

UC Riverside Academic Senate Omnibus Grant

| | |
|------|---------|
| 2012 | \$1,150 |
| 2011 | \$1,400 |
| 2010 | \$ 630 |
| 2009 | \$1,000 |
| 2008 | \$1,500 |
| 2007 | \$1,607 |

George Washington University Administrative Service

University

GW University Honors Program Advisory Committee, member, Fall 2014-2017

GWSB

SWAPT, Member Fall 2021-present
 Dean's Covid 19 Response Advisory Task Force Spring 2020
 MBA Curriculum Taskforce, 2019
 Research Committee, Spring 2017, 2018-2020
 SWAPT, Member Fall 2015-Spring 2017
 Strategic Planning Committee, Cross-Disciplinary Taskforce Spring 2015

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Marketing Department

Department Chair, 2017

APT Chair, Spring 2014-Spring 2016

**UC Riverside Administrative Service
Department**

AGSM Department of Management and Marketing Department Chair, 07/1/2006-6/30/2011

Marketing Area Recruiting Search Committee, Chair, 2006-2007

Management Area Recruiting Search Committee, Ex-Officio Member, 2006-2007

Marketing Area Recruiting Search Committee, Ex-Officio Member, 2007-2008

Management Area Recruiting Search Committee, Ex-Officio Member, 2007-2008

Management Area Recruiting Search Committee, Chair, 2008-2009

Marketing Area Recruiting Search Committee, Ex-Officio, 2008-2009

First Annual AGSM Marketing Camp, May 9, 2008

College

Soba Faculty Mentor to Student American Marketing Association Club, 2012-present

AGSM Strategic Planning Committee, 2008-2009

AGSM Senior Leadership Team, 9/2007-present

AGSM Graduate Committee, 07/2006-06/2007

AGSM BASD Committee, 07/2007-2009

Campus

UCR Online Strategic Planning Committee, 2013-present

UCR Faculty Welfare Committee, 2012-present

UCR Strategic Planning Committee, Academic Excellence Subcommittee, 2009-2010

UCR AGSM Dean Search Committee, 2006-2007

UCR Senior Marketing Council, 2006-2008

UCR School of Medicine Dean Search Committee, 2007

UCR School of Communications Task Force Co-Chair, 2008-present

Vanderbilt University Administrative Service

Faculty Senate, 1996-1999, 2004-2006

Technology Literacy Arc Seminar, sponsored by the Center for Teaching and the Associate Provost
for Innovation through Technology, 2002

Owen Executive Committee 2004-2006

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Dean Search Committee 2004-2005
Faculty Development Committee, 2003-2005
Marketing Recruiting Committee, 1997, 2003-2006
Owen Strategic Planning Committee, 2001-2002
Marketing Area Head, 2002-2003, 2005-2006
Chair, Marketing Recruiting Committee, 1994 (co-chair), 1999, 2001, 2002, 2004, 2005
Coordinator, Marketing Area Ph.D. Program, 1994-2001
Member, Owen Ph.D. Committee, 1993-2003
Chair, Computing/Telecommunications Strategic Planning Committee, 1993-1996
Promotion Committee, Ray Friedman, 2003
Renewal Committee, Neta Moyer, 2002
Human Resources/Organizational Studies Search Committee, 1994
Director, Electronic Commerce Program, 2000-2005
Faculty Sponsor, eBusiness and Technology Club, 2000-2005
Director & Founder, Electronic Commerce Emphasis, 1996-2000
Faculty Advisor (Marketing area), Business Projects Group, 1994-2000
EMBA Curriculum Committee 2002-2003
Committee on Instruction, 1997-2000

UT Dallas Administrative Service

School of Management Executive Education Committee, 1991-1992
School of Management Teaching Committee, 1991-1993
University Committee on Faculty Standing and Conduct, 1991-1993

Columbia Business School Administrative Service

Marketing Faculty Recruiting Coordinator, 1988
Marketing Faculty Search Committee, 1988; 1986
Faculty Research Review Committee (Chair, 1989), 1987-1990
Committee on Computer Use (Chair, 1987-1989), 1987-1990

Selected Media Recognition

Business Week "Mover & Shaker," San Francisco Webgrrls Top 25 Women on the Web,
Microtimes 100, Advertising Age "Web Warrior," *c/net* "Visionary," *Internet World* "Internet
Hero," *Newsweek* "The Net 50 People Who Matter Most on the Internet"

Documents Considered List

Academic Articles

- Abebe, T. H. (2019), “The Derivation and Choice of Appropriate Test Statistic (Z, t, F and Chi-Square Test) in Research Methodology,” *Mathematics Letters*, 5, 3, 33–40, <http://www.mathlett.org/article/10.11648/j.ml.20190503.11>
- Bagozzi, R. P. et al. (1999), “The Role of Emotions in Marketing,” *Journal of the Academy of Marketing Science*, 27, 2, 184–206, https://www.academia.edu/10256866/The_role_of_emotions_in_marketing
- Campbell, M. C. and K. L. Keller (2003), “Brand Familiarity and Advertising Repetition Effects,” *Journal of Consumer Research*, 30, 2, 292–304, https://www.researchgate.net/publication/24099213_Brand_Familiarity_and_Advertising_Repetition_Effects
- Di Geronimo, L. et al. (2020), “UI Dark Patterns and Where to Find Them: A Study on Mobile Applications and User Perception,” *CHI Conference on Human Factors in Computing Systems*, <https://dl.acm.org/doi/fullHtml/10.1145/3313831.3376600>
- Epstein, S. (1994), “Integration of the Cognitive and the Psychodynamic Unconscious,” *American Psychologist*, 49, 8, 709–724
- Fast, E. et al. (2016), “Empath: Understanding Topic Signals in Large-Scale Text,” *CHI Conference on Human Factors in Computing Systems*, <https://arxiv.org/abs/1602.06979>
- Gray, C. M. et al. (2023), “Mapping the Landscape of Dark Patterns Scholarship: A Systematic Literature Review,” *Designing Interactive Systems Conference*, 188–193, <https://dl.acm.org/doi/pdf/10.1145/3563703.3596635>
- Gray, C. M. et al. (2024), “An Ontology of Dark Patterns Knowledge: Foundations, Definitions, and a Pathway for Shared Knowledge-Building,” *CHI Conference on Human Factors in Computing Systems*, 289, 1–22, <https://arxiv.org/pdf/2309.09640>
- Gunawan, J. et al. (2021), “A Comparative Study of Dark Patterns Across Mobile and Web Modalities,” *Proceedings of the ACM on Human-Computer Interaction*, 5, CSCW2, 1–29, <https://dl.acm.org/doi/10.1145/3479521>
- Hofmann, W. et al. (2009), “Impulse and Self-Control From a Dual-Systems Perspective,” *Perspectives on Psychological Science*, 4, 2, 162–176
- Kahneman, D. (2003), “A Perspective on Judgment and Choice: Mapping Bounded Rationality,” *American Psychologist*, 58, 9, 697–720
- Kim, J. et al. (2016), “Pagination Versus Scrolling in Mobile Web Search,” *Proceedings of the 25th ACM International on Conference on Information and Knowledge Management*, 751–760

- Kitkowska, A. et al. (2022), “Online Terms and Conditions: Improving User Engagement, Awareness, and Satisfaction through UI Design,” *CHI Conference on Human Factors in Computing Systems*, 624, 1–22, <https://dl.acm.org/doi/pdf/10.1145/3491102.3517720>
- Krugman, H. E. (1965), “The Impact of Television Advertising: Learning Without Involvement,” *Public Opinion Quarterly*, 29, 3, 349–356, <https://aapor.org/wp-content/uploads/2022/11/Public-Opin-Q-1965-KRUGMAN-349-56.pdf>
- Krugman, H. E. (1971), “Brain Wave Measures of Media Involvement,” *Journal of Advertising Research*, 11, 1, 3–9
- Kumar, P. C. et al. (2019), “Privacy and Security Considerations for Digital Technology Use in Elementary Schools,” *CHI Conference on Human Factors in Computing Systems*, 307, 1–13
- Lewis, C. et al. (1990), “Testing a Walkthrough Methodology for Theory-Based Design of Walk-Up-and-Use Interfaces,” *CHI Conference on Human Factors in Computing Systems*, 235–242
- Luguri, J. and L. J. Strahilevitz (2021), “Shining a Light on Dark Patterns,” *Journal of Legal Analysis*, 13, 1, 43–109, <https://academic.oup.com/jla/article/13/1/43/6180579>
- Mathur, A. et al. (2019), “Dark Patterns at Scale: Findings from a Crawl of 11K Shopping Websites,” *Proceedings of the ACM on Human-Computer Interaction*, 3, CSCW, 81, 1–32, <https://arxiv.org/abs/1907.07032>
- Mathur, A. et al. (2021), “What Makes a Dark Pattern...Dark? Design Attributes, Normative Considerations, and Measurement Methods,” *Conference on Human Factors in Computing Systems*, 360, 1–18, <https://arxiv.org/abs/2101.04843>
- Nielsen, J. (1994), “Usability Inspection Methods,” *CHI Conference on Human Factors in Computing Systems*, 413–414
- Novak, T. P. and D. L. Hoffman (2003), “The Influence of Goal-Directed and Experiential Activities on Online Flow Experiences,” *Journal of Consumer Psychology*, 13, 1–2, 3–16, <http://faculty.bus.olemiss.edu/dhawley/mba622/Articles/InfluenceOnFlowActivitiesDec2001.pdf>
- Novak, T. P. and D. L. Hoffman (2009), “The Fit of Thinking Style and Situation: New Measures of Situation-Specific Experiential and Rational Cognition,” *Journal of Consumer Research*, 35, 1, 56–72
- Reinartz, W. et al. (2005), “Balancing Acquisition and Retention Resources to Maximize Customer Profitability,” *Journal of Marketing*, 69, 1, 63–79,

- https://www.researchgate.net/publication/228643081_Balancing_Acquisition_and_Retention_Resources_to_Maximize_Customer_Profitability
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 - Stanovich, K. E. and R. F. West (2000), “Individual Differences in Reasoning: Implications for the Rationality Debate?” *Behavioral and Brain Sciences*, 23, 5, 645–726, <https://pages.ucsd.edu/~mckenzie/StanoichBBS.pdf>
 - Strack, F. et al. (2006), “Reflective and Impulsive Determinants of Consumer Behavior,” *Journal of Consumer Psychology*, 16, 3, 205–216
 - Utz, C. et al. (2019), “(Un)informed Consent: Studying GDPR Consent Notices in the Field,” *Proceedings of the 2019 ACM SIGSAC Conference on Computer and Communications Security*, 973–990
 - Waldman, A. E., (2020), “Cognitive Biases, Dark Patterns, and the ‘Privacy Paradox,’” *Current Opinion in Psychology*, 31, 105–109
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Bates Stamped Documents

- AMZN_00014167
- AMZN_00028279
- AMZN_00045980
- AMZN_00046046
- AMZN_00046069
- AMZN_00046119
- AMZN_00046147
- AMZN_00046239
- AMZN_00046292
- AMZN_00046381
- AMZN_00046407
- AMZN_00046465
- AMZN_00046496
- AMZN_00046590
- AMZN_00046652
- AMZN_00046741
- AMZN_00046832
- AMZN_00047284
- AMZN_00047285
- AMZN_00047286
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- AMZN_00047294
- AMZN_00047301
- AMZN_00047302
- AMZN_00047303
- AMZN_00080322
- AMZN_00080635
- AMZN_00080811
- AMZN_00136674
- AMZN-PRM-FTC-000367635
- AMZN-PRM-FTC-000705737
- AMZN-PRM-FTC-000705878
- AMZN-PRM-FTC-001851339
- AMZN-PRM-FTC-002473093
- AMZN-PRM-FTC-002650080
- AMZN-PRM-FTC-002650117
- AMZN-PRM-FTC-002650208
- AMZN-PRM-FTC-002650294
- AMZN-PRM-FTC-002650314
- AMZN-PRM-FTC-002650515
- FTCAMZN_0016436
- FTCAMZN_0016438

Books

- Chaiken, S. and Y. Trope (1999), *Dual-Process Theories in Social Psychology*, Guilford Press
- Cook, T. D. and D. T. Campbell (1979), *Quasi-Experimentation: Design & Analysis Issues for Field Settings*, Boston, MA: Houghton Mifflin
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- Kotler, P. and K. Keller (2016), *Marketing Management*, 15th ed., Hoboken, NJ: Prentice Hall,
https://students.aiu.edu/submissions/profiles/resources/onlineBook/S3D7W4_Marketing_Management.pdf
- Montgomery, D. C. (2012), *Design and Analysis of Experiments*, 8th ed., Hoboken, NJ: John Wiley & Sons, Inc.
- Petty, R. E. and J. T. Cacioppo (1986), *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*, New York, NY: Springer-Verlag

Expert Reports

- Expert Report of Donna L. Hoffman, Ph.D., February 24, 2025
- Expert Report of Marshini Chetty, Ph.D., February 24, 2025
- Expert Report of Ronald T. Wilcox, Ph. D., February 24, 2025
- Expert Report of William J. Violette, Ph.D., February 24, 2025

Depositions

- Deposition of Benjamin Goeltz, October 30, 2024
- Deposition of Reid Nelson, February 27, 2025

Legal Documents

- Defendants Amazon.com, Inc., et al.'s Responses and Objections to Plaintiff Federal Trade Commission's Second Set of Interrogatories, *Federal Trade Commission, v. Amazon.com, Inc., et al.*, United States District Court Western District of Washington at Seattle, Case No. 2:23-cv-0932-JHC (June 3, 2024)
- FTC Matter No. 2123050, Amazon's CID Response to Supplemental Interrogatory Request 6.1, October 7, 2022
- FTC Matter No. 2123050, Amazon's Fourth CID Response, June 21, 2021

Public Press & Websites

- "Confirmation Dialogs Can Prevent User Errors — If Not Overused," *Nielsen Norman Group*, February 18, 2018, <https://www.nngroup.com/articles/confirmation-dialog>
- "Indicators, Validations, and Notifications: Pick the Correct Communication Option," *Nielsen Norman Group*, January 17, 2024, <https://www.nngroup.com/articles/indicators-validations-notifications>
- "Prime Central," *Amazon*, <https://www.amazon.com/gp/primecentral>

- “Progressive Disclosure,” *Nielsen Norman Group*, December 3, 2006, www.nngroup.com/articles/progressive-disclosure
- “Scrolling and Attention,” *Nielsen Norman Group*, April 15, 2018, <https://www.nngroup.com/articles/scrolling-and-attention>

Other Produced Documents

- Expert Report of Marshini Chetty, Ph.D., February 24, 2025, Attachments B–V
- Expert Report of Marshini Chetty, Ph.D., February 24, 2025, MC10 Prime Signup CX, “Prime Signup CX”

Additional Citations from Chetty Opening Report

- “10 Usability Heuristics for User Interface Design,” *Nielsen Norman Group*, January 30, 1994, <https://www.nngroup.com/articles/ten-usability-heuristics/>
- “Deceptive Patterns – User Interfaces Designed to Trick You,” *deceptive.design*, April 25, 2023, <https://www.deceptive.design/>
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- Bösch, C. et al. (2016), “Tales from the Dark Side: Privacy Dark Strategies and Privacy Dark Patterns,” *Proceedings on Privacy Enhancing Technologies*, 4, 237–254
- Brignull, H. (2023), *Deceptive Patterns: Exposing the Tricks Tech Companies Use to Control You*, Testimonium Ltd
- Dix, A. et al. (2004), *Human-Computer Interaction*, 3rd ed., Harlow, UK: Pearson Education Limited
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- Goodman, E. G. and M. Kuniavsky, *Observing the User Experience: A Practitioner’s Guide to User Research*, 2nd ed., Waltham, MA: Elsevier, Inc.
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- Gray, C. M. et al. (2021), “Dark Patterns and the Legal Requirements of Consent Banners: An Interaction Criticism Perspective,” *CHI Conference on Human Factors in Computing Systems*, 172, 1–18
- Habib, H. et al. (2022), “‘Okay, Whatever’: An Evaluation of Cookie Consent Interfaces,” *CHI Conference on Human Factors in Computing Systems*, 621, 1–27
- Hridi, A. P. et al. (2022), “Exhibiting Evidence in Remote Courtrooms: Design and Usability Study,” *Companion Publication of the 2022 Conference on Computer Supported Cooperative Work and Social Computing*, 102–105
- Jaiswal, R. and H. Moosath (2023), “Into the Dark World of User Experience: A Cognitive Walkthrough Study,” in *HCI International 2023 Posters*, 609–618
- Kitkowska, A. (2023), “The Hows and Whys of Dark Patterns: Categorizations and Privacy,” in *Human Factors in Privacy Research*, Cham, CH: Springer, 173–198
- Kugler, M. B. et al. (2025), “Can Consumers Protect Themselves Against Privacy Dark Patterns?,” *Coase-Sandor Institute for Law and Economics Research Paper*, 25-01, 1–55
- Mildner, T. et al. (2023), “Defending Against the Dark Arts: Recognising Dark Patterns in Social Media,” *Designing Interactive Systems Conference*, 2362–2374, <https://dl.acm.org/doi/10.1145/3563657.3595964>
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- Romanosky, J. and M. Chetty (2018), “Understanding the Use and Impact of the Zero-Rated Free Basics Platform in South Africa,” *CHI Conference on Human Factors in Computing Systems*, 192, 1–13
- Ross, A. S. et al. (2021), “Evaluating the Interpretability of Generative Models by Interactive Reconstruction,” *CHI Conference on Human Factors in Computing Systems*, 80, 1–15

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Note: In addition to the documents on this list, to form my opinions I considered all documents cited in my report, exhibits, appendices, and workpapers.

Coding Instructions

Overview of the Coding Exercise

1. You will be reviewing screenshot bundles showing enrollment of various paid digital membership/subscription programs (or free trials of such programs), featuring the steps involved to sign up for the program (i.e., “enrollment screenshot bundle”).
2. You will be reviewing each enrollment screenshot bundle for the existence of two user interface design elements (“UI design elements”).
3. You will code each screenshot bundle as a 0 or 1, depending on whether it contains the relevant UI design element. Instructions on when to record a 0 or 1 for each of the UI design elements are provided below.

Coding Guidelines

1. For each paid digital membership/subscription screenshot bundle, set aside enough time to review the whole screenshot bundle and code all relevant UI design elements.
2. Go through the entire screenshot bundle from start to finish first to understand all the steps before beginning to record your coding.
3. Review the coding instructions before you start reviewing and coding, and reference them as needed during the coding exercise.
4. Review and code enrollment/cancellation screenshot bundles in the order in which they are listed in the coding spreadsheet.
5. Save your data (the coding spreadsheet) frequently.

Enrollment

1. The company offers a free trial.

GOAL: Some paid digital membership/subscription programs offer a free trial of the program where the consumer gets access to some or all the program’s benefits at no charge for a limited period. Assess whether a free trial of the paid digital membership/subscription program is shown to the consumer. Code as follows:

- a. 1 – The enrollment screenshot bundle contains an offer for a free trial of the paid digital membership/subscription program.
- b. 0 – The enrollment screenshot bundle does not contain an offer for a free trial of the paid digital membership/subscription program.

2. The website contains an “interruption” of the consumer’s navigation during the enrollment or purchase process.

GOAL: In the context of this coding exercise, an “interruption” can be an overlay that appears over the content of a given webpage (i.e., a layer that appears on top of a webpage that prevents interacting with the underlying webpage unless a certain action is taken, such as a pop-up box that contains call-to-actions that may need to be clicked before the consumer can progress navigating the website) or a standalone webpage. The standalone webpage or the overlay is an “interruption” if it only presents content that is different from the content relating to the previous call-to-action feature the consumer clicked (e.g., an overlay or webpage that only presents a charitable donation or an offer to upgrade the product (or service) that is being purchased is shown to the consumer after the consumer clicks a “Complete Purchase” feature on the previous webpage). An overlay or webpage that appears as soon as the consumer enters the website’s landing page (i.e., home page) for the first time and presents content that is different than the landing page (e.g., an offer or a message that requires the consumer to click on a call-to-action feature and/or an “X” button before they can proceed to the website’s landing page) should also be considered an “interruption” in the context of this coding exercise. Do not consider a webpage that prompts the consumer to sign in to their account (or similar actions such as signing up for an account, entering a password, or providing a two-factor authentication code) an “interruption.” Such account sign-in (or similar) webpages should be excluded and skipped when considering whether the content of the destination webpage is different from the call-to-action feature clicked immediately preceding the account sign-in (or similar) webpage. In the context of this coding exercise, the enrollment or purchase process starts when the consumer clicks the website link to enter the landing page and ends when the consumer completes enrollment in a paid digital membership/subscription program (or free trial of the program) or completes the purchase of items or services on the website. Assess whether each enrollment screenshot bundle contains a webpage that “interrupts” the consumer’s navigation during the enrollment or purchase process. Code as follows:

- a. 1 – The enrollment screenshot bundle contains an “interruption” of the consumer’s navigation during the enrollment or purchase process.
- b. 0 – The enrollment screenshot bundle does not contain an “interruption” of the consumer’s navigation during the enrollment or purchase process.

APPENDIX D

Desktop Enrollment Flow Comparative Analysis

| No. | Service | Website Category ^[2] | Company offers a free trial that automatically renews | Overlay is used to make an offer for the program | Benefits of the program are repeated multiple times on a given webpage | Benefits of the program are repeated across multiple webpages | Call-to-action feature to decline the offer for the program differs in color and/or size from the call-to-action feature to accept the offer | Information about auto-renewal is disclosed before a consumer completes enrollment in the program | Information about the price of the program is disclosed before a consumer completes enrollment in the program | Benefits of the program are presented using larger or differently colored text or other visual elements compared to other text on the same webpage | Call-to-action feature to complete enrollment in the program is the same color scheme as prior call-to-action features | Company offers a free trial | Website contains an "interruption" of consumer's navigation during the enrollment or purchase process |
|--|-------------------------------|---------------------------------|---|--|--|---|--|---|---|--|--|-----------------------------|---|
| Amazon Prime^[1] | | | | | | | | | | | | | |
| | UPDP | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SOSP | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SPC ^[2] | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | TrueSPC ^[2] | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| A Streaming | | | | | | | | | | | | | |
| A.1 | Netflix | Category 3 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| A.2 | Disney+ | Category 3 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| A.3 | Max | Category 3 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| A.4 | Paramount+ | Category 3 | ✓ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| A.5 | Hulu | Category 3 | ✓ | ✗ | ✓ | ✗ | No decline option | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ |
| B Delivery | | | | | | | | | | | | | |
| B.1 | Walmart+ | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| B.2 | Target Circle 360 | Category 1 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| B.3 | My Best Buy Plus | Category 1 | ✗ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| B.4 | Costco | Category 1 | ✗ | ✗ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ |
| B.5 | Kroger Boost | Category 1 | ✓ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| C Music | | | | | | | | | | | | | |
| C.1 | Spotify Premium | Category 2 | ✓ | ✗ | ✓ | ✗ | No decline option | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ |
| C.2 | Apple Music | Category 2 | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| C.3 | YouTube Music Premium | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| C.4 | SiriusXM | Category 3 | ✓ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| C.5 | Pandora | Category 2 | ✓ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| D Cloud Storage | | | | | | | | | | | | | |
| D.1 | Google One (for Google Drive) | Category 2 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| D.2 | Dropbox Plus | Category 2 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| D.3 | Microsoft 365 (for OneDrive) | Category 2 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| D.4 | Box | Category 2 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| D.5 | Mega | Category 2 | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| E Gaming | | | | | | | | | | | | | |
| E.1 | PlayStation Plus (PS Plus) | Category 1 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| E.2 | Nintendo Switch Online | Category 1 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| E.3 | Xbox Game Pass | Category 1 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| E.4 | NVIDIA GeForce Now | Category 2 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| E.5 | EA Play | Category 1 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| F Food Delivery | | | | | | | | | | | | | |
| F.1 | DoorDash DashPass | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| F.2 | Uber One (for Uber Eats) | Category 1 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| F.3 | Instacart+ | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ |
| F.4 | 7-Eleven GoldPass | Category 1 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| F.5 | Hello Fresh | Category 3 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| G Live TV | | | | | | | | | | | | | |
| G.1 | YouTube TV | Category 3 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G.2 | Hulu TV | Category 3 | ✓ | ✗ | ✓ | ✗ | No decline option | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ |
| G.3 | Sling TV | Category 3 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| G.4 | Fubo TV | Category 3 | ✓ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| H Home Security | | | | | | | | | | | | | |
| H.1 | Nest Aware (for Google Nest) | Category 1 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| H.2 | Wyze | Category 1 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ |
| H.3 | SimpliSafe | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| H.4 | Xfinity | Category 3 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| I News | | | | | | | | | | | | | |
| I.1 | New York Times | Category 2 | ✗ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| I.2 | Wall Street Journal | Category 2 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| I.3 | Washington Post | Category 2 | ✗ | ✓ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| I.4 | Gannett/USA Today | Category 2 | ✗ | ✓ | ✗ | ✓ | No decline option | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| I.5 | Substack | Category 2 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ |
| J Cybersecurity | | | | | | | | | | | | | |
| J.1 | McAfee | Category 3 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| J.2 | Malwarebytes | Category 3 | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| J.3 | Avast | Category 3 | ✓ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| J.4 | AVG | Category 3 | ✗ | ✗ | ✗ | ✗ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| J.5 | Webroot | Category 3 | ✗ | ✗ | ✓ | ✓ | No decline option | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| Total Subscription Programs Reviewed [A] | | | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| # of Programs Not Applicable for Analysis [B] | | | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 |
| # of Programs Applicable for Analysis [C] = [A] - [B] | | | 48 | 48 | 48 | 48 | 11 | 48 | 48 | 48 | 48 | 48 | 48 |
| # of Programs That Are Consistent with Amazon's Practices [D] | | | 23 | 27 | 44 | 44 | 9 | 48 | 48 | 46 | 42 | 23 | 25 |
| % of Programs That Are Consistent with Amazon's Practices [E] = [D] / [C] | | | 48% | 56% | 92% | 92% | 82% | 100% | 100% | 96% | 88% | 48% | 52% |

Source: See Hoffman Opening Report Appendix D, Appendix E.

Note:

[1] Checkmarks for Amazon pages in this table for the at-issue UI design element "Website contains an "interruption" of consumer's navigation during the enrollment or purchase process" are based on Prof. Chetty's claim that the UPDP "interrupts the consumer's shopping process by presenting them with information about a subscription service (i.e., Amazon Prime) that is separate from the product they are buying." See Chetty Opening Report, ¶ 116. However, as discussed in Section IV.A.1, Prof. Chetty's claim is flawed and unreliable.

[2] In this table, I considered versions of Amazon's SPC and TrueSPC flows that insert the UPDP page as a Prime enrollment offer (see Amended Complaint, ¶ 66, Attachment I (TrueSPC flow) and "Prime Offers in Checkout Re-Imagined Mini PR & FAQ," May 27, 2020, AMZN_00040706-28 at 17). The UPDP within these two flows was used to evaluate the following UI design elements: "An overlay is used to make an offer for the paid digital membership/subscription program" and "Call-to-action feature to decline the offer for the paid digital membership/subscription program differs in color and/or size from the call-to-action feature to accept the offer on the same webpage."

[3] Under "Website Category," the 48 companies whose enrollment flows I analyzed can be divided into three categories based on the types of products/services they offer: (1) companies that also sell products or services other than the paid digital membership/subscription programs (e.g., Walmart, Best Buy) ("Category 1"), (2) companies that use a freemium pricing model (i.e., companies that offer a free version of their product or service alongside paid digital membership/subscription programs for premium content and services (e.g., YouTube Music, Wall Street Journal)) ("Category 2"), and (3) companies that only offer paid digital membership/subscription programs for streaming content or the services they offer (e.g., Netflix, Xfinity) ("Category 3"). See Hoffman Opening Report, Appendix D, D.1 for more details.

Desktop Cancellation Flow Comparative Analysis

| No. | Service | Website Category ^[1] | "Manage my account" webpage includes a feature to advance to the cancellation flow | Website's landing page does NOT include a feature to start the cancellation flow | Cancellation flow involves navigating multiple webpages | Call-to-action features for alternatives to immediately cancelling the program are present in cancellation flow | Cancellation flow mentions program's benefits | Cancellation flow includes warning icons | Call-to-action features for cancelling differ in color from call-to-action feature to remain enrolled |
|--|-------------------------------|---------------------------------|--|--|---|---|---|--|---|
| Amazon Prime | | | | | | | | | |
| | Cancellation Flow | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| A Streaming | | | | | | | | | |
| A.1 | Netflix | Category 3 | ✓ | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ |
| A.2 | Disney+ | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| A.3 | Max | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| A.4 | Paramount+ | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| A.5 | Hulu | Category 3 | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ |
| B Delivery | | | | | | | | | |
| B.1 | Walmart+ | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| B.2 | Target Circle 360 | Category 1 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ |
| B.3 | My Best Buy Plus | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| B.4 | Costco | Category 1 | No online cancellation | ✓ | No online cancellation | No online cancellation | No online cancellation | No online cancellation | No online cancellation |
| B.5 | Kroger Boost | Category 1 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| C Music | | | | | | | | | |
| C.1 | Spotify Premium | Category 2 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| C.2 | Apple Music | Category 2 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| C.3 | YouTube Music Premium | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| C.4 | SiriusXM | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| C.5 | Pandora | Category 2 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| D Cloud Storage | | | | | | | | | |
| D.1 | Google One (for Google Drive) | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| D.2 | Dropbox Plus | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| D.3 | Microsoft 365 (for OneDrive) | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| D.4 | Box | Category 2 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ |
| D.5 | Mega | Category 2 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ |
| E Gaming | | | | | | | | | |
| E.1 | PlayStation Plus (PS Plus) | Category 1 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| E.2 | Nintendo Switch Online | Category 1 | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ |
| E.3 | Xbox Game Pass | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| E.4 | NVIDIA GeForce Now | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| E.5 | EA Play | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| F Food Delivery | | | | | | | | | |
| F.1 | DoorDash DashPass | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| F.2 | Uber One (for Uber Eats) | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| F.3 | Instacart+ | Category 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| F.4 | 7-Eleven GoldPass | Category 1 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | No decline option |
| F.5 | Hello Fresh | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G Live TV | | | | | | | | | |
| G.1 | YouTube TV | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| G.2 | Hulu TV | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| G.3 | Sling TV | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| G.4 | Fubo TV | Category 3 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ |
| H Home Security | | | | | | | | | |
| H.1 | Nest Aware (for Google Nest) | Category 1 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✗ |
| H.2 | Wyze | Category 1 | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| H.3 | SimpliSafe | Category 1 | No online cancellation | ✓ | No online cancellation | No online cancellation | No online cancellation | No online cancellation | No online cancellation |
| H.4 | Xfinity | Category 3 | No online cancellation | ✓ | No online cancellation | No online cancellation | No online cancellation | No online cancellation | No online cancellation |
| I News | | | | | | | | | |
| I.1 | New York Times | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| I.2 | Wall Street Journal | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | No decline option |
| I.3 | Washington Post | Category 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| I.4 | Gannett/USA Today | Category 2 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ |
| I.5 | Substack | Category 2 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | No decline option |
| J Cybersecurity | | | | | | | | | |
| J.1 | McAfee | Category 3 | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ |
| J.2 | Malwarebytes | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| J.3 | Avast | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| J.4 | AVG | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| J.5 | Webroot | Category 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | No decline option |
| Total Subscription Programs Reviewed [A] | | | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| # of Programs Not Applicable for Analysis [B] | | | 3 | 0 | 3 | 3 | 3 | 3 | 7 |
| # of Programs Applicable for Analysis [C] = [A] - [B] | | | 45 | 48 | 45 | 45 | 45 | 45 | 41 |
| # of Programs That Are Consistent with Amazon's Practices [D] | | | 45 | 48 | 44 | 30 | 36 | 7 | 39 |
| % of Programs That Are Consistent with Amazon's Practices [E] = [D] / [C] | | | 100% | 100% | 98% | 67% | 80% | 16% | 95% |

Source: See Hoffman Opening Report Appendix D, Appendix E.

Note:

[1] Under "Website Category," the 48 companies whose enrollment flows I analyzed can be divided into three categories based on the types of products/services they offer: (1) companies that also sell products or services other than the paid digital membership/subscription programs (e.g., Walmart, Best Buy) ("Category 1"), (2) companies that offer a free version of their product or service alongside paid digital membership/subscription programs for premium content and services (e.g., YouTube Music, Wall Street Journal) ("Category 2"), and (3) companies that only offer paid digital membership/subscription programs for streaming content or the services they offer (e.g., Netflix, Xfinity) ("Category 3").

[2] Costco, SimpliSafe, and Xfinity do not offer an online option to cancel their paid digital membership/subscription programs even though they each offer an online option to subscribe to their paid digital membership/subscription programs.

[3] Out of the 48 flows reviewed for the metric "The call-to-action feature for cancelling the paid digital membership/subscription program (or a free trial of the program) on the final page of the cancellation flow differs in color from the call-to-action feature to remain enrolled in the program," 3 flows (i.e., cancellation flows for Costco, SimpliSafe, and Xfinity) did not offer online cancellation options, and 4 flows (i.e. cancellation flows for 7-Eleven GoldPass, Wall Street Journal, Substack, and Webroot) did not contain a call-to-action feature to remain enrolled in the cancellation flow. For these websites, a call-to-action feature to remain enrolled was not provided, however consumers could choose not to cancel the paid digital membership/subscription program or free trial of the program by actions such as leaving the website or closing the overlay (if applicable) by clicking on the "X" on the top corner of the overlay. Results for this UI design element were calculated based on the 41 flows that did have both call-to-action features to cancel and remain enrolled on the final page of the cancellation flow. See Hoffman Opening Report Appendix D for more details.